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UNIVERSITY OF ALBERTA

THE NATURE OF MOTOR PARTICIPATION OF STUDENTS IN INTEGRATED ELEMENTARY PHYSICAL EDUCATION

©

by

SANDRA E. STEPHENS

A THESIS SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND
RESEARCH IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF MASTER OF SCIENCE

DEPARTMENT OF PHYSICAL EDUCATION AND SPORT STUDIES

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SPRING, 1992

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Jane Watkinson
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JW for R.J. Sobsey
DR. R.J. SOBSEY

DATE:

DEDICATION

With love, this book is dedicated to the memory of

Mr. Arthur C. Stephens, and written for:

Mrs. Hazel R. Stephens for the many years of sacrifices and love. The strength of your faith has been an inspiration.

To Doug and Debbie thank you for your support and friendships. You really are my 'favorite' brother and sister, and to Jonathon, Christopher and Anita for your love and laughter. Watching you at play, confirms the important value of play and interaction. All children need that opportunity.

The meaning of this thesis is a celebration of people- how we are so very unique and so very much the same.

ABSTRACT

New Brunswick schools are committed to the education of all students, regardless of educational need. This study was designed to describe the nature of participation and the amount of support provided to students with special needs in integrated elementary physical education classes. A second purpose was to determine the extent of involvement of students in motor content areas of the curriculum, and to identify teachers' use of class groupings and individualized instruction to foster inclusion.

Seven integrated physical education classes were videotaped for the present study. Four of the classes were taught by classroom teachers, and three were taught by physical education specialists. The students identified as having special needs in this study were matched with two students participating at an average ability level. Nine student triads were investigated in this study and comparisons between the two student groups were made in relation to their class experiences. Two forms of data collection were used : teacher questionnaires, and a modified Academic Learning Time-Physical Education (ALT-PE) Observation System (1982).

Results from this study pointed to favourable integrated situations. Students with special needs participated in most curriculum activities in roles of full

participation, special active roles, or in alternate physical activities. Teacher aides were present in classes for less than 30% of the respondents, and student aides were infrequently utilized. Teachers reported devoting 38% of class time to individual activities, 35% to cooperative groupings, 20% to partner-work, and 17% to competitive situations. Instruction was rarely individualized (4.4% of the time) for individual learners. Although teachers allocated 64% of the time to subject matter motor activities, students were only motor engaged with this content for 25% of the time. No significant differences were found in motor responding behavior between students with and without special needs. Serious concerns were raised regarding teachers' effective use of time, and use of strategies, such as cooperative learning activities, individualized instruction and peer tutors, to improve the integrated experiences of all children.

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> Two roads diverged in a yellow wood,
> And sorry I could not travel both
> And be one traveller, long I stood...
> Robert Frost

Many people were instrumental in the decision to return to school and pursue a masters degree. A special thank-you is sent to Anne Lindsay for believing my first inquiry, and not turning me away from the goal. Patti, thank-you for not faltering in the belief that I could do this!

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To my colleagues in Saint John (Connie, Glen, Bill, Trish and Roy), I thank you for your patience and support during the stages of videotaping and writing. Connie, your wisdom, faith and commitment I have tried to grasp - thanks!

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> Treat people as if they were what they
> ought to be and you help them to become
> what they are capable of being.
> Johann von Goethe

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INTRODUCTION

Education is a valued social system and provides direction for children to be socialized into our society. They are challenged to learn the knowledge and skills they may need to become contributing adults in their communities (Knoblock, 1987; Wolfensberger, 1983). Teachers, given the task of developing education programs, must organize the learning environment, present information and provide support to their students (Biklen, 1985; Mosston & Ashworth, 1986). Children, with their varied backgrounds, needs, interests, skills and abilities must learn to succeed in the learning environment. They are required to respond to teacher directions in a way that fosters personal achievement (Blackford & King, 1985; Brinker & Thorpe, 1984).

The teaching-learning process has been studied in numerous ways. Many research studies have focussed on time-on-task as an important variable in assessing student learning opportunities (Aufderheide, McKenzie & Knowles, 1982; Gagnon, Tousignant & Martel, 1989; Gauthier, 1980; Ratliffe, 1986; Thompson, 1988; Webster, 1987). Time variables have been used in determining teacher effectiveness in providing opportunities for their students to learn the subject matter, and have been used to describe the nature of students' involvement in curriculum content (Metzler, 1989; Siedentop, Tousignant & Parker, 1982).

Features of the curriculum and learning environment have also been studied to determine their contribution to the teaching-learning process. Community-based instruction (Knoblock, 1987; McGill, 1986), functional approaches to the teaching-learning process (Biklen, 1985), and value-based models of instruction (Hellison, 1985) are examples of aspects of the environment that have been examined. These studies of the learning process have produced valuable information on effective teaching strategies. The use of cooperate learning (Biklen, 1985; Johnson & Johnson, 1986; Slavin, 1983; Wilcox, Sbardellati & Nevin, 1987), and individualized instructional strategies (Aufderheide, McKenzie & Knowles, 1981; Knoblock, 1987; Slavin, 1983) have also been investigated by researchers interested in the teaching-learning process. Many of the above researchers and educators have investigated segregated and integrated environments and have begun to develop a base of literature relating to the education process for students identified as having special needs.

Students With Special Needs

For students with special needs access to regular education programs has often been denied, and they have begun their education in a system of segregation (McCardle, 1987; New Brunswick Department of Education, 1987). Their experiences have generally been characterized by exclusion, rather than inclusion. Blackford and King (1985) explain that these segregated experiences, "create a sheltered environment and postpone a child's discovery of who he is and where he belongs in the larger world (p.5)". Segregated learning environments managed to keep children with special needs outside of the 'real world'. When students with special needs completed their formal schooling, they had few skills with which to relate to other adults in their communities, nor did these individuals without special needs have the skills or attitudes to communicate and interact together, as fellow citizens within communities. Segregated schools for children led to segregated lives as adults (New Brunswick Department of Education, 1987).

The power of inclusion and a philosophical commitment to its value, cannot be negated. Wolfensberger (1983), through the concept of social role valorization, merits the importance of enhancing a person's competencies in 'culturally valued' environments. The educational setting is one of the most important culturally valued environments for children, as they spend a considerable amount of time during their growing years in classroom settings. A sense of inclusion, or 'belonging' in natural environments can only be achieved by the complete integration of individuals into the environments that are valued within our present society (Wolfensberger, 1972). Blackford and King (1985) define integration as "enabling the disabled individual to develop self esteem and a sense of identity in the context of the real world (p.4)". Murphy and Nisbet (1987) further elaborate that, "integration goes beyond merely being physically present in the environment, which represents only a facilitating step toward individual, valued, social participation (p.411)".

Many researchers have looked at the socialization benefits of integrated environments (Beckman & Kohl, 1987; Brinker, 1985; Cole, Meyer, Vandercook & McQuarter, 1986; Maddux & Maddux, 1983). Interesting findings pointed to socialization gains not only for students with special needs, but also for their classmates. Personal contact and interaction or participation are often the most crucial means of removing prejudices or stereotypes (Biklen, 1985), thus fostering inclusion. A sometimes neglected positive benefit to integration is the effect on the teachers. Biklen (1985) states that:

> ... teachers speak of adapting their teaching styles as a means of achieving a positive academic learning environment **and** promoting an ethic of inclusion rather than a message, however unconscious, of exclusion. (p.70)

Blatt (1981) challenges teachers to change their attitudes and their teaching, to include students of varying ability levels within the same program. He is committed to the belief that all children are capable of learning, and speaks of the interdependent roles of teachers and students in the teaching-learning process.

In providing positive integrated involvement, it is necessary to consider all factors within the child's environment. Although each situation is specific to the individual students and teachers involved, there are some factors that seem to be important in providing inclusive educational environments.

Inclusive Educational Environments

This discussion has outlined some critical characteristics of an inclusive educational environment. Perhaps the most important features are opportunities for personal interaction and valued participation. The third characteristic refers to the presence of teaching styles that are adapted to learners' skills and abilities. Teaching in an integrated environment, "involves the development of an instructional plan that serves not only to identify handicapped children's academic needs, but also indicates the curriculum and teaching methods that are necessary for them to achieve the stated objectives" (Gottlieb, 1981, p.116).

Jellison, Brooks & Huck (1984) add two further characteristics: cooperative learning conditions, and the facilitation of social interactions. They feel that personal contact may not happen spontaneously in integrated environments, so teachers should be prepared to teach interaction skills that will facilitate positive interaction and subsequent feelings of belonging.

The process of integration also means providing the necessary supports for students to be involved (Hutchison & McGill, 1990; Lord, 1983). Supports may be in the form of mechanical aids and modified equipment, or in the form of people support. Teacher or student aides have been instrumental in assisting students to participate to their maximum potentials (Folio & Norman, 1981; Kohl, Moses & Stettner-Easton, 1983; Webster, 1987). As indicated, the mere placement of students together, however, may not result in a positive or successful mainstreamed experience (Biklen, 1985; Gottlieb, 1981). In assessing physical education environments, it is important for the above characteristics to be transferred to the gymnasium setting, or new strategies developed specific to the physical education learning environments.

Inclusion in the Gymnasium

The classroom and gymnasium are both natural environments for a child. The gymnasium has the potential for creating an inclusive environment in which all students can participate. Personal contact and valued participation can be realized in active, modified, and even passive participation in physical activities. Well-designed physical activities allow for physical participation by people of widely-varying skills and abilities. Modifications to specific activities can be made, or students can be given special active roles or alternate physical activities, when the task at hand does not appear to lend itself to full participation by all students. Indeed, even passive participation through spectating can provide a sense of inclusion not possible in classroom activities, though this is not the kind of participation that is most desirable. Teaching styles and strategies for integrated classes have been translated into successful active experiences in physical education settings. Most particularly, the use of individualized instruction

(Aufderheide, McKenzie & Knowles, 1982; Robbins, 1990), and peer tutors (Folio & Norman, 1981; Webster, 1987) has increased participation of students identified as having special needs, in curriculum activities.

How can the physical education environment ensure that children experience the sense of inclusion and belonging that is critical for successful integration? In order for all students to feel included in physical education programs, the program goals and objectives must be relevant and appropriate to each participant's needs and abilities. Criticisms of physical education programs have been made when the program goals focus on elitist or competitive experiences (Arbogast & Lavay, 1986; Kunc, 1984; Ojeme, 1986; Robbins, 1990), rather than on individual participation, skill acquisition, and cooperative experiences (Hutchison & McGill, 1990; Kunc, 1984; Robbins, 1990). It follows that the former may lead to experiences of exclusion for individuals with special needs. For example, by his own personal account, Kunc (1984) felt pressured to perform certain skills, despite the fact that his physical disability made the 'accepted way' of doing skills very difficult, if not impossible. The key to his inclusion was creativity in identifying the goal and finding new ways of performing class activities. For example, Kunc (1984) tells of his experiences with wrestling:

> Because I didn't have quick coordination, they gave me a weight advantage so my opponent was about twenty pounds lighter than I was. We also started off on our knees rather than our feet. By making these two small adaptations I was completely integrated into the wrestling section of the physical education program.
>
> (p.102)

Some discrepancies have occurred between goals that are encouraged, and what is rewarded in physical education. Personal fitness, full participation, individual effort, skill acquisition, and 'sportsmanship' are often cited as program objectives in physical education programs (Grant, 1990; Robbins, 1990). These are objectives that should foster meaningful participation for all children regardless of level of skill or physical ability. Yet, the rewards that accompany many activities in physical education seem to place more value on excellence (for example, in the Canada Fitness Tests), and competition (through the awarding of medals and ribbons). These discrepancies often bring criticism to physical education programs and teachers (Corbin, 1987; Grant, 1990; Ojeme, 1986), and develop feelings of exclusion on the part of children with special needs. In fact, many curriculum activities appear to inhibit full participation by students with special needs

(Squair, 1987; Watkinson, 1987; Watkinson & Bentz, 1985), such that their participation in physical education classes is discontinued or reduced to observation or special passive roles. A purpose of the present study was to investigate the nature of participation in curriculum activities of students with and without special needs, in integrated physical education classes.

In addition to relevant goals, an inclusive physical education environment will provide creative teaching strategies and styles that meet the needs of students with varying abilities (Barrett, 1988; Corbin, 1987; Hellison, 1985; Weber, 1989). Cooperative learning and cooperative activities (Arbogast & Lavay, 1986; Johnson & Johnson, 1986; Slavin, 1983), and individualized instruction (Aufderheide, Knowles & McKenzie, 1981; Hellison, 1985; Webster, 1987) are critical to enhance students' confidence, and skills.

Perhaps the most observable measure of inclusion of a student in a physical education class is the amount of time that he or she is actually participating in class activities. While such a measure does not reflect the social interaction of the students, or the feelings of belonging of the participants, it does give a behavioral indication of the degree to which a student is involved in the physical education program. As such it is valuable information for evaluating the success of the integrated experience. Many researchers have used the concept of academic learning time in defining student opportunities to learn and participate in curriculum activities, and in assessing the effective use of teachers' and students' time (Metzler, 1989; Siedentop, Tousignant & Parker, 1982; Thompson, 1988). In his review of time-related studies in physical education, Metzler (1989) outlines what we do know about how teachers and students spend their time. An overwhelming report is that teachers spend on average "25-50% of their time within noninstructional class activities" (Metzler, 1989, p.93). Students' time has also been consistently reported to be spent in nonfunctional activities, and "only about 10-20% of all class time can be viewed as contributing to learning outcomes (Metzler, 1989, p.94)". This figure is disturbingly low. Most of the research on academic learning time of students in physical education has been focussed on children in the mainstream. If children generally are not spending much time engaged in successful motor participation one can question whether children with special needs will spend even less time involved in curriculum activities.

It has been suggested in the literature that strategies used to include students with special needs will improve the participation of all students within the class (Biklen, 1985; Knoblock, 1987; Slavin, 1983). The need for individualized instruction may increase the academic learning time of students with special needs, and that of their classmates. To determine the extent of time spent in learning activities in integrated classes, attention must be paid not only to the students' time-on-task but also to teacher-student interactions of an individualized nature. A second purpose of the present study was to describe the percentages of time that teachers provided opportunities for students to practice and learn the subject matter through appropriate motor engagement time and the adoption of individualized instructional strategies.

Statement of the Problem

This study was designed to determine the extent to which children with special needs are included in physical education activities within integrated classes at the elementary school level. Four research questions were asked to describe students' involvement in curriculum activities, and to describe the nature of their participation during instructional time.

QUESTION # 1: To what extent do students with special needs participate in the full range of activities offered in their physical education classes? What supports are provided to students with special needs to enable them to participate in these activities?

The answer to these questions will be determined through the analysis of teacher questionnaires. Frequencies of teacher responses will be tabulated.

QUESTION # 2: What percentages of time do teachers report spending in cooperative, competitive, individual and reciprocal class groupings in the physical education environment?

Teacher questionnaires will be utilized to collect this data, and collated as percentages of time within each of the four class organizational groupings.

QUESTION # 3: Are individual instructions and criteria for performance given to students with special needs? Are there differences between students with and without special needs in the amount of individualized instruction given by the teacher?

This information will be collected using a modification of the Academic Learning Time-Physical Education (ALT-PE) Observation System, as designed by Siedentop, Tousignant & Parker (1982). Findings will be reported as percentages of time.

QUESTION # 4: What are the participation patterns of students with and without special needs in integrated physical education classes?

A) What is the total motor engaged time for students?

B) What are the ALT-PE measures for students in the four context areas of practice, scrimmage/routine, game and fitness?

C) In which activities do students spend their time when they are not motor engaged?

D) Are there differences between classroom teachers and physical education specialists in the ALT-PE measures?

This question analyzes student participation in the class activities, as directed by the teacher. Comparisons will be made between students identified as having special needs and those participating at an average ability level and between classroom teachers and physical education specialists. This data will also be collected using a modification of the ALT-PE Observation System (Siedentop, Tousignant & Parker, 1982).

Significance of the Problem

The New Brunswick department of education has committed itself to educating all students, regardless of handicap or need, in local schools through the legislation of Bill 85: An Act to Amend the School's Act. Much discussion has taken place over the issues involved, and a five year plan towards total academic integration has been devised. The education system also promotes the principle of inclusion and is committed to providing educational services to individuals with special needs. The inclusion of students of varying ability levels has been met; 1) with promise, by parents, advocacy and support groups lobbying for this change (most initiated and led by parents and educators), and by teachers responsible for education programs; and 2) with apprehension, by parents and teachers responsible for education programs. Many authors point to the fact that integration is not simply a matter of placing students with and without exceptionalities in a school or community environment (Jellison, Brooks & Huck, 1984; Ludlow & Sobsey, 1984). Ludlow and Sobsey (1984) further indicate that "specific procedures must be applied to obtain true acceptance and to foster meaningful integration (p.33)". Facilitation and planning are necessary to provide positive and successful integration experiences.

The New Brunswick Board of Education responded to Bill 85 with a commitment to integration. A government-appointed task force held public hearings throughout the province. Many issues and concerns were raised. The concept of inclusion and integration is very complex and begs the consideration of a number of issues. The most resounding statement from the majority, if not all, of the briefs and presentations was a belief that the principle of integration in general was right and should be encouraged. The areas of most controversy were those surrounding support provided to teachers, implementation strategies and training. The major recommendations from this government task force were: to improve education programs for teachers (pre-service and in-service) to enable them to be better prepared to teach students with exceptionalities, and to provide strong leadership towards full implementation of the Bill, so as to alleviate fears and misconceptions concerning integration. Further mention was made of increasing support and resources for teachers, and a need for a reduction in class sizes (Trenholme, 1989).

An evaluation of integrated physical education programs in New Brunswick, is therefore timely. Students identified as having special needs will no longer be segregated from the 'natural' educational environments of local schools. The present study was developed to describe students' involvement and the nature of their participation in curriculum activities, and to determine how teachers and students spend their time during classes. Teacher questionnaires and classroom observation were used to answer the research questions.

Limitations

Although the sample size was small, limiting the generalizability of the results, the sample was representative of the current teachers and students in integrated elementary school physical education classes. Both physical education specialists and classroom teachers responsible for teaching the physical education program to their classes were videotaped. Student participants represented a range of special needs in the physical, emotional and mental domains.

With videotaped data collection, there is a concern that participants will portray ‘model behaviors’. To reduce this effect, the classes were videotaped on one occasion prior to the actual data collection, in order to familiarize the participants with the presence of the camera in the class.

Questionnaires were also used for data collection. A limitation in this form of data collection is that respondents may not necessarily report what they actually do, and may give a ‘socially desirable response’. Due to the anonymity of the questionnaire, with no direct evaluation of individual teachers, and given the present climate in New Brunswick regarding the issue of integration, it is believed that teachers responded truthfully. do, and may give a ‘socially desirable response’. Due to the anonymity of the questionnaire, with no direct evaluation of individual teachers, and given the present climate in New Brunswick regarding the issue of integration, it is believed that teachers responded truthfully.

Definition of Terms

Integration refers to programmatic efforts to provide educational services in one setting for students with and without special needs. This generally indicates inclusion of students with special needs into the regular class (Knoblock, 1987; Noonan & Hemphill, 1984).

Motor engagement time is the amount of time accrued in which a student is engaged in motor responses that are appropriate [with and without assistance], inappropriate [with and without assistance], and motor responses that involve assisting others (Siedentop, Tousignant & Parker, 1982).

Academic learning time-physical education (ALT-PE) is the amount of time students spend working directly on meaningful learning tasks (those at appropriate levels of difficulty or challenge) at a high success rate (Siedentop, Tousignant & Parker, 1982, p.3).

Students with special needs or exceptionalities are students identified by the school system with intense educational needs, in areas of physical, mental or emotional domains, requiring varying degrees of support in regular classes. Individualized educational plans have been developed in meeting these needs.

REVIEW OF LITERATURE

The passage of Bill 85: An Act to Amend the School's Act, has had an impact on education in New Brunswick. In reference to integration, three priorities have been identified by the Department of Education (1988):

> (1) First,...the Minister of Education and school boards are now responsible for the education of all children in New Brunswick who qualify by age and residency.
>
> (2) The second important feature of Bill 85 is its emphasis on individual programming.
>
> (3) The third significant feature of the new legislation is its requirement to integrate.
>
> (New Brunswick Department of Education, 1988,p.3)

With these guidelines school boards have devised five-year implementation plans for total academic integration. Underlying this movement in New Brunswick is a belief that "integration means all our children belong" (New Brunswick Department of Education, 1987). The directions given to school boards require that children attend their neighbourhood schools and that instruction emphasize individualized programming provided in integrated settings.

The purpose of the present study was to assess the integration of students with special needs in integrated elementary physical education programs in New Brunswick. In assessing the success of integrated classes it is necessary to look at many issues. A review of all literature covering these issues would be too extensive for the present study. However, an overview of the importance of a philosophical commitment to inclusion, curriculum design, instructional strategies and class organizational groupings will be provided in this review.

Gallahue's Developmental Model of physical education (1987) will provide the framework for addressing the literature concerning the integration of students with special needs into general educational environments and into elementary physical education classes. Planning has been emphasized in the literature as being fundamental in providing opportunities to learn for all students within their educational programs. In following Gallahue's model, integration can be a part of the total program curriculum, rather than as extra planning to include students with special needs. Often, integration is discussed as an 'add-on' feature to programs already in existence (Noonan & Hemphill, 1984). For example, if teachers are given a specific in-service program for teaching students with special needs in physical education, this would be an 'add-on' feature. A more 'normalizing' or 'natural' approach would be to hold an in-service program on cooperative games, including recommendations and strategies for the inclusion of students with varying ability levels (Noonan & Hemphill, 1984).

To evaluate present integrated classes as investigated in this research, Gallahue's model (1987) offers a framework to discuss the necessary components for integrated physical education programs, within a wide range of teacher orientations and styles. Gallahue's (1987) model identifies six steps that are important when devising an elementary school physical education curriculum: establishing a value base, establishing a conceptual framework, determining objectives, designing the program, implementing the program and evaluating progress. Figure 1 shows the schematic representation of this model.

The Value Base In Integrated Physical Education

Gallahue's (1987) model has considered important areas of concern that are sometimes omitted in other accounts of programming in physical education. One such area is the inclusion of a value base or philosophy. While Hellison (1985) and Biklen (1985) identify the specific values to be followed in their curriculum approaches, Gallahue's model provides the structure for all teachers to employ in identifying their own philosophy.

[1]
ESTABLISH A VALUE BASE
a. philosophy
b. goals

[2]
ESTABLISH A CONCEPTUAL FRAMEWORK
a. categories of movement
b. content areas of p.e.
c. movement concepts
d. stages of motor development
e. levels of skill learning

[6]
ASSESS PROGRESS
a. program
b. goals
c. student learning
d. teacher effectiveness

[3]
DETERMINE OBJECTIVES
a. general objectives
b. determine conditions
c. specific objectives

[5]
IMPLEMENT PROGRAM
a. instructional design
b. learning environment

[4]
DESIGN PROGRAM
a. scope
b. sequence
c. balance

FIGURE 1 : Gallahue's Developmental Physical Education Curriculum (1987, p.137)

> Beliefs and values are very important to identify and articulate because once we acknowledge them, we must hold ourselves accountable for carrying them out.
>
> (Turnbull & Barber, 1984, p.151)

In ensuring successful integrated experiences, a philosophy of social role valorization, with the goal of inclusion is necessary (Blatt, 1981; Knoblock, 1987; Wolfensberger, 1983). Inherent in Wolfensberger's (1983) message is the goal of enhancing a person's social image and personal competencies. A philosophy that enhances personal competencies within 'culturally valued environments' leads to the goal of positive integration experiences (Wolfensberger, 1972, 1983). Students begin to develop a sense of themselves in environments that all individuals may access (Blackford & King, 1985). The practice of segregation in special schools and hospitals led to segregated existences for adults (Blatt, 1981). A philosophical and moral conviction towards inclusion is critical for the success of integration (Biklen, 1985; Blatt, 1981; Wolfensberger, 1972, 1983).

Alberta Education states that normalization is a goal of school programs for students with special needs (McCardle, 1987). Integration is the strategy used in reaching this goal.

> Integration, from an educational perspective, means that all students have equal access to the total school environment for the purpose of achieving their educational goals.
>
> (Noonan & Hemphill, 1984, p.1)

This definition is in keeping with the philosophical basis of normalization (Wolfensberger, 1972). According to Noonan & Hemphill (1984) three areas need to be considered when fostering inclusive and integrated environments. First, physical accessibility must be ensured. This involves providing environments that all students can access (e.g., using ramps, signs, pictures, tones, etc.). The second area needing emphasis is program accessibility. This ensures the availability of the same school programs and materials for students with disabilities (e.g., home room, recess, music, intramurals, gymnasium equipment, books, etc.). Finally, affective accessibility needs to be addressed. This involves removing attitudes and beliefs that have led to stereotyping and segregation of students with handicaps. A conscious approach must be initiated to educate all people involved in the process of integrating students to:

> ... enhance their respect for individual differences, improve their understanding of integration purposes, and support the generalization of positive attitudes developed through integration.
>
> (Noonan & Hemphill, 1984, p.2)

It is postulated that a successful and inclusive education program will be committed to the philosophical value of education for all children, regardless of educational needs and will foster a sense of inclusion and belonging through the process or goal of integration. Integrating students into the education system requires careful planning and cooperation among district administrators and supervisors, principals, teachers, parents and students (Alberta Education, 1982a, 1982b; Biklen, 1985; Knoblock, 1987). Strategies for integration need to be carefully planned and should include all people involved in the development and design of policies and programs.

> ... it would be inaccurate to portray integration as simply a technical matter. What distinguishes successfully integrated programs is a strong commitment to the principle of integration. The critical issue facing educators, administrators, and parents is not whether integration can work, but how to make it work. (Knoblock, 1987, p.60)

The present study is based on this premise: integration is morally right and the question for educators and researchers is no longer 'Should we integrate?', but 'How do we best integrate?'.

A Conceptual Framework For Physical Education

Important to this step in Gallahue's (1987) model is the framework for designing the approach to the educational curriculum. Many approaches have been used in designing physical education programs which often result in the formation of 'eclectic' curriculum approaches.

> Physical education is eclectic because its origin is founded on information and data from varied fields.
>
> (Barrow, 1983, p.30)

Principles utilized in physical education stem from biology, anatomy, kinesiology, political science, philosophy, sociology and psychology (Barrow, 1983). These broad influences on physical education have led to the design of programs focussed on three interrelated domains of learning (Barrow, 1983; Sherrill, 1986). The psychomotor domain pertains to motor and fitness performance, the cognitive domain refers to intellectual skills including technique and strategy, and the affective domain relates to feelings, attitudes, interests and values (Sherrill, 1986).

Although there have been various approaches to the physical education curriculum identified in the literature, (e.g., developmental, traditional, movement education, and student motives and purposes) they are often used in combination with each other (Gallahue, 1983; Hellison, 1985; Thomas, Lee & Thomas, 1988). For example, Gallahue's developmental model is based on the overlap of the stages of skill development using human movement themes through the use of traditional content activities and movement education concepts. It is important to design a framework consistent with the philosophy and goals already outlined. Barrett (1988) has conceptualized physical education into two main themes: physical activities (or traditional) and human movement. The underlying goal of a 'human movement' orientation to physical education,

> is the important role that movement plays in a child's life and that learning how to move and learning about movement itself is a worthy aim in and of itself.
>
> (Barrett, 1988, p.43)

Movement education activities are designed around themes concerning the form and patterns of movement. This thematic orientation is based on an analysis of movement regarding space, direction, range, and effort. Lessons are developed around themes such as, spatial awareness, movement exploration, or relationships with objects or other people (Barrett, 1988; Gallahue, 1983; Thomas, Lee & Thomas, 1988).

In the traditional or physical activities orientation, the curriculum is designed to provide "a balanced and wide range of activities placed in progression from simple to complex across grade levels" (Barrett, 1988, p.43). There is a beginning focus for elementary aged children on informal play in a variety of sport, rhythmic activities, and low organized games. This progresses to specialization and competition in traditional sports (Barrett, 1988; Gallahue, 1983; Thomas, Lee & Thomas, 1988).

In teaching students with special needs, there has been a history of the use of skill upgrading approaches (Reid, 1987; Sherrill, 1986). This focus assumes a diagnostic-prescriptive component to teaching based on student needs and weaknesses. Skills are task analyzed and students are assessed to determine where instruction should begin. This also forms the basis for criterion-referenced evaluation. Examples of these approaches are the PREP Play program devised by Watkinson and Wall (1982) and the I CAN program by Wessel, developed in 1976 (Reid, 1987).

In providing positive integrated physical education programs, an approach must be followed that is premised on learners' strengths and abilities, rather than on weaknesses (Biklen, 1985; Eichstaedt & Kalakian, 1987; Vickers, 1990). Although not directly concerned with physical education environments, Biklen (1985) presents a 'Functional Approach' to teaching children with special needs in integrated educational environments. The question posed when utilizing this approach is, "How can we help both the student and the student's environment adapt to each other?" (Biklen, 1985, p.83). The curriculum is developed building on the strengths and abilities of the students. The functional approach is in many ways a new orientation to teaching physical education. The focus is flexible depending on student needs rather than meeting curriculum requirements. Teachers must work at removing barriers to students' learning and organize the curriculum and the 'natural environment' of the gymnasium in such a way that all students have the opportunity to learn to their maximum capabilities. Initial time investment by teachers will be great until they become comfortable with the approach.

Important in developing a conceptual framework is the consideration of the school, the learning environment, and the learners. Vickers' (1990) Knowledge Structures Model (KS Model), "of instructional design is presented as a vehicle for linking the subject matter of a sport or activity with teaching and coaching methodology (Vickers, 1990, p.5)". An eight-step process is divided into three subdivisions: analysis, decision making and applications. The first section dealing with analysis is most relevant to an integrated framework for physical education. The KS

Model requires the teacher to become knowledgeable and analyze sport or activity into expert knowledge structures.

> This process (analysis of a sport or activity into expert knowledge structures) requires the translation of knowledge acquired as a student or athlete into knowledge that is appropriate for presentation to others (Vickers, 1990, p.5).

It is also important for teachers to analyze the learning environment and to know about the learners and their capabilities. This knowledge must then be organized into strategies, skills and concepts to develop objectives, evaluation procedures, and specific teaching progressions, culminating in the application of instructional plans (Vickers, 1990).

Physical Education Program Objectives

Objectives need to be stated to guide the instructional program. This aspect of planning is essential when including students with special needs in integrated physical education programs. Objectives in physical education have related to the three domains of learning: psychomotor, cognitive and affective (Barrow, 1983; Gallahue, 1983; Sherrill, 1986; Vickers, 1990). Unique to physical education are the objectives within the psychomotor domain. These objectives concentrate on skill acquisition, physical fitness and full participation in vigorous activity (Grant, 1990; Robbins, 1990; Watkinson, 1987). More recently this has expanded to general fitness and well-being, and the development of leisure and life-time activity skills (Sherrill, 1986; Thomas, Lee & Thomas, 1988).

The affective domain objectives focus on developing a positive self-concept and social competencies to participate with others in the physical education environment (Barrow, 1983; Robbins, 1990; Sherrill, 1986). Cognitive domain objectives relate to the knowledge a student gains concerning rules, technique or strategy, and the understanding of principles of health, movement and exercise as a way of life (Barrow, 1983; Sherrill, 1986; Vickers, 1990).

A criticism of past research is in conceptualizing skill acquisition and participation objectives as in opposition, and so instruction involves trading one off, in favour of the other (Robbins, 1990; Schmid, 1987). While promoting the importance of cooperative conditions, Hutchison and McGill (1990) have looked at the roles of leaders in facilitating integrated environments and stress the importance of providing supports for individuals to be participating fully in program activities. More research is needed in developing ways to increase both the full participation and skill acquisition of students with special needs in integrated physical education classes.

Often objectives of skilled movement and fitness acquisition have been seen as detrimental in reaching the objectives of a more social or participation nature. In fact, much work in the area of adapted physical education identifies the former objectives as appropriate for students in regular physical education programs, and the latter as most important for students with special needs (Watkinson, 1987). This is unfortunate, and prevents the participation of students with special needs as full and equal partners in the learning of movement skills, leading to stereotypical views of learners' capabilities. Physical education environments offer the potential to provide skill acquisition and participation experiences to all learners (Eichstaedt & Kalakian, 1987). One of the most important objectives of physical education is to instill in all students a desire to pursue active and healthy lifestyles as adults and to provide learners with the necessary movement skills to do this (Robbins, 1990; Schmid, 1987). Objectives must be developed based on student abilities and needs and the subsequent program implementation must encourage the active participation of all students within the learning environment.

Teachers must determine the objectives that are important for students and ascertain the specific conditions that are necessary for participation. The involvement of students with special needs often includes the writing of Individual Education Plans (I.E.P.) (Sherrill, 1986). This form of individualization is valuable for all students, and more educators are starting to look at individual needs in programming (Arbogast & Lavay, 1986; Gallahue, 1987; Hellison, 1985; Lavay & Depaepe, 1987; Vickers, 1990; Weber, 1989).

Many integration studies fail to concentrate on specific task learning and whether the students with handicaps are involved in the same number of activities as their peers or classmates. There is a definite lack of literature addressing the involvement of students in integrated physical education programs (Gauthier, 1980; Lavay & Depaepe, 1987; Rizzo, 1984; Squair, 1987; Watkinson & Bentz, 1985; Weiss & Karper, 1980).

Watkinson & Bentz (1985) conducted a Cross-Canada survey on the integration of students with physical disabilities into elementary and secondary physical education programs. Their findings indicate that participation in most activities is low and that the form of participation is inactive or in special role functions (Watkinson & Bentz, 1985). In a similar study, Squair

(1987) interviewed teachers regarding the integration of physically challenged students into regular physical education programs. Her findings indicated that students generally participated individually and were involved less in group activities or games.

Vickers (1990) states that:

> ...implementing an objectives-based learning environment requires extra resources as well as a personal commitment to be extensively involved with each student's learning. Extensive preparation, management skills encompassing both the group and the individual, and creative learning materials, such as task cards, individual programs, and other learning aids will be required. (p.116)

The Physical Education Program Design

Teachers must design the education program utilizing settings, equipment, and activities that are appropriate for the learners, and their age. It is important that teachers and students have the chance to develop a sense of ownership with the program (Grant, 1990; Hellison, 1985; O'Sullivan & Burroughs, 1989). Teachers need to feel a sense of responsibility for the programs they are teaching. If teachers are involved with all stages of development, it has been found that their commitment to the program can be increased (Grant, 1990; Hellison, 1985). In fact, if teachers do not have a say in the program design they may become less accountable for their teaching and attribute student non-involvement to factors outside of the learning environment (Grant, 1990; O'Sullivan & Burroughs, 1989).

It follows that students should also be given responsibility for the design of aspects of their program. Hellison's (1985) approach to the physical education program is premised by the changing needs of students within the educational system and calls for a hard look at our responsibilities to students and to their growth. He proposes a human approach to curriculum development that is value based. If a student has a say in developing his or her program, he or she may become more accountable and motivated to reach the program objectives. Vickers' (1990) model also points to the importance of having teachers and students involved in the program design. Both of these models have very strong implications for integrating students and for maximizing the curriculum to meet the changing needs of all students.

The curriculum orientation and activities that are chosen will reflect how students are involved in the program. Some authors have criticized the lack of information gained by students in physical education environments and the unequal instruction practices based on athletic ability of the students (Corbin, 1987; Kneer, 1987; Miller, 1987; Ojeme, 1986). These criticisms need to be addressed. The curriculum activities that are selected must be based on the objectives, conceptual framework, and the value base of the program. Often the criticisms of physical education are with the discrepancy between stated objectives, and actual program activities that do not seem structured with the goals in mind. As indicated, setting program objectives for learners is time consuming and requires the teacher to be knowledgeable, not only in the content or activities being taught, but also about the learning environment, and individual students (Vickers, 1990).

Very little information is available regarding motor performance of individual students in integrated physical education classes. Often the measurement used for success is based on the affective goals of social competencies and enjoyment (Eichinger, 1990; Watkinson, 1987). While these are important, it is also necessary to encourage skilled movement and active participation in curriculum activities for all students (Barrow, 1983; Eichstaedt & Kalakian, 1987; Sherrill, 1986; Thomas, Lee & Thomas, 1988; Watkinson, 1987).

Often, physical skill competence is related to enhancing self concept and social participation in the 'natural environments' of children, such as gymnasium, or playground settings (Schmid, 1987; Watkinson, 1987). This sense of physical, **and** social competence can result in keeping children interested in pursuing physical activity choices throughout their lifetimes (Barrow, 1983; Schmid, 1987). Assistance strategies or levels of support can also be employed to assist learners in attaining the motor competencies necessary to continue their participation in activities of their choice (Cutforth, 1988; McGill, 1990).

> The teacher can teach for maximum skill improvement by adapting and modifying activities, providing performance aids, physical guidance, or a combination of these methods.
>
> (Cutforth, 1988, p.25)

Teachers must consider the learners and their forms of participation in the curriculum content when devising physical education programs (Cutforth, 1988; Hellison, 1985; Vickers, 1990). The activities that are executed in the class must be designed to reach the program objectives. By increasing ownership for the program, the quality of the experiences may be enhanced for all involved.

Implementation Of The Program

This stage of planning refers to the instructional strategies that the teacher employs in reaching program objectives. Important to integrated programs is the implementation of an approach that will foster positive benefits. This step will be discussed in two areas: inclusion strategies and teacher effectiveness.

Inclusion Strategies

The strategies reviewed for the present study are the use of cooperative learning, individualized instruction, and peer tutors. Biklen (1985), Jellison, Brooks & Huck (1984), Slavin (1983), and Wilcox, Sbardellati & Nevin (1987) promote cooperative learning groups as essential to creating inclusive environments. It has been suggested that grouping children with varying abilities encourages feelings of tolerance and respect for individual differences, helping to break down stereotypes (Jellison, Brooks, & Huck, 1984). Many researchers have found that the integration of students with and without special needs has a social benefit (Brinker, 1985; Brinker & Thorpe, 1984; Edmonton Catholic School District: DH Program Evaluation, 1987; Maddux & Maddux, 1983) not only for students with special needs, but for all students within the class.

Research in integrated classrooms has shown benefits to all students within a class when instruction is individualized (Biklen, 1985; Gent & Mulhauser, 1988; Knoblock, 1987; Needels, Renneker, & Stayrock, 1981; Slavin, 1983). It was suggested by Needels, Renneker & Stayrock (1981), that the presence of students with special needs increases the teacher's awareness of how class time is spent. As a result, instructions become more task oriented and all students benefit.

Studies investigating learning in physical education have also identified individualized instruction (Arbogast & Lavay, 1986; Aufderheide, McKenzie & Knowles, 1982; Lavay & Depaepe, 1987), as an important strategy to foster inclusion. Aufderheide, Knowles & McKenzie (1981) found that the use of individualized instruction strategies increased students' motor ALT-PE measures. They further conclude that, "the use of individual instruction allows the teacher to keep and maintain systematic records on student behavior and progress (Aufderheide, Knowles & McKenzie, 1981, p.25)". Although the focus of individualized instruction is on meeting a student's particular learning needs, the method of applying this information does not have to be through individual participation structures. This strategy may be employed through cooperative group structures, while allowing for the consideration of individual differences in meeting program objectives (Arbogast & Lavay, 1986).

DePaepe (1985) studied the effects of segregated, integrated and peer-tutor environments in physical education on the learning time measures for students with special needs and found that the ALT-PE measures were higher for students in the peer-tutor grouping. The use of peer tutors in the integrated physical education classes was not investigated. Webster (1987), observed students with mental handicaps in Adapted Physical Education programs. This study investigated the use of peer tutors in improving ALT-PE behavior of students, with the specific goal of increasing motor appropriate responses. Two major findings were reported: higher rates of ALT-PE were observed when peer tutors were present, even when allowing for activity changes, and the training of the tutors did not effect the ALT-PE measures. Webster (1987) concluded,

> With minimal investment of time and essentially no money, an Adapted Physical Education specialist, with the assistance of non-handicapped students, can increase the amount of time that moderately and severely mentally handicapped students spend in motor activity (p.401).

Participation in curriculum activities needs further research. Academic learning time measures in physical education were found to differ depending on the particular lesson activity investigated in Webster's (1987) study. Games held in confined spaces requiring constant action had higher percentages of learning time (51.7%) than games such as softball when played outside on regulation fields (24.8%). Self-paced instruction had percentages of approximately (30%). Gagnon, Tousignant & Martel (1989), also reported differences in ALT-PE(M) for individuals in adapted physical education programs based on specific activities. Principals in Ratliffe's (1986) research felt that changes in activities would help improve the quality of students' engaged time. Ratliffe (1986) reported that principals "expressed a desire to know more about activities that are appropriate for children and that are high in activity time and low in management time (p.124)." Weber (1989) further states that task variation is an important aspect in teaching. This strategy builds on skill strengths to foster mastery and to keep motivation high for learning. This form of instruction is consistent with the 'functional' or Knowledge Structures approaches to the educational framework (Biklen, 1985; Vickers, 1990).

Specific information is needed on providing and reducing supports for students with special needs within a physical education class. Lister-Piercy (1985) developed a program of reducing support to individuals with mental handicaps in a community swim program. Important to participation was a well planned progression of reducing supports, and individualized goals for instruction. Hutchison and McGill (1990) explain that the use of supports may be necessary throughout program involvement for individuals requiring this assistance, but that full inclusion and participation can be realized with varying forms of support present in natural environments.

Teacher Effectiveness

Different teacher interventions and teaching strategies need to be investigated to enable students to be involved to their own personal maximum. Teachers must use a teaching style that provides optimal learning opportunities, dependent on teacher and learner characteristics, and program goals and objectives (Mosston & Ashworth, 1986). Physical education teachers in Canada generally feel unprepared to use such strategies with disabled students in their regular classes (Stephens, 1989; Squair, 1987; Watkinson & Bentz, 1985).

> Teachers have concerns regarding the availability of resource personnel and support services, the lack of training to workwith handicapped students as well as the problems related to the evaluation of an individualized program.
>
> (Alberta Education, 1982a, p.4)

Much concern has been raised over this issue (Goodwin, 1987; Lavay & Depaepe, 1987; Ojeme, 1986; Weiss & Karper, 1980). Knoblock (1987) summarizes :

> To be a successful teacher requires an openness to new learning and a willingness to accept responsibility for making a difference in children's education. [Teachers are encouraged] to pursue working with students who are disabled and who can change and learn when our schools and teachers respond to their needs.
>
> (p.469)

The integration of students in regular educational programs has challenged traditional teaching styles and strategies. By educating learners with exceptionalities, students previously 'lost in the cracks' and those considered low achievers, were also improving (Biklen, 1985; Knoblock, 1987; Needels, Renneker & Stayrock, 1981).

Assessment Of Integrated Programs

In evaluating integrated programs a majority of the research has focused on the socialization benefits for both handicapped and non-handicapped individuals (Beckman & Kohl, 1987; Biklen, 1985; Brinker, 1985; Brinker & Thorpe, 1986; Cole, Meyen, Vandercook, & McQuarter, 1986; Johnson & Johnson, 1986; Maddux & Maddux, 1983). These studies examined classroom and free play settings. The focus was on cooperative learning strategies and indications of social bidding towards students without handicaps. Social interaction has often been the measuring instrument in determining the strength of integration. Qualities such as peer acceptance, initiation and response to interaction have been investigated. Brinker & Thorpe (1984) focused their attention on the educational gains in an integrated setting and found that "rate of interaction with non-handicapped students was related to the educational achievements of severely handicapped students as indicated by meeting IEP objectives (p.172)". They concluded that the amount of integration did coincide with attainment of objectives. A caution with these results is in order as the specific lesson objectives were not stated, nor was the degree of difficulty or challenge to the student discussed.

Knoblock (1987) asks:

> How do we know we are fostering the maximum potential for participation of each child or young adult? After all, children vary considerably in their abilities, motivations, and preferences. By what standard can we evaluate our educational interventions with students who experience severe disabilities? (p.313)

Many evaluation models have been developed to measure the progress of students identified as having special needs involved in educational programs. Biklen's (1985) functional approach has been discussed previously. This approach calls for a new curriculum focus and changes in teaching styles to reflect the changing role of teachers' as a result of the rapidly changing society in which we live.

In physical education, such models are not available to evaluate integrated physical education experiences. However this evaluation should be encorporated within existing curriculum frameworks, rather than as another 'add-on' feature of programming (Noonan & Hemphill, 1984). As indicated the Knowledge Structures Model (Vickers, 1990) outlined may offer the necessary framework for evaluating the physical education learning environment consistent with learners' capabilities. The evaluation of programs must be done based on the objectives stated (Gallahue, 1987; Vickers, 1990).

The concept of academic learning time has been correlated with student opportunities to learn and achieve program goals. The focus of observation is student behavior, rather than teacher behavior. Many authors have reviewed the development of this concept as a valid construct for student opportunities to learn in physical education (Aufderheide, Knowles & McKenzie, 1981; Metzler, 1983; Thompson, 1988). Research in physical education has relied on observational data collection. Due to the unique nature of physical education, student responses depend on physical movement and are observable indications of students' involvement in curriculum activities. Practicing skills in the psychomotor domain is almost exclusive to physical education programs (Aufderheide, Knowles & McKenzie, 1981; Lavay & Depaepe, 1987; Thompson, 1988). Systematic observation of movement is highly objective due to the nature of required responses to instruction.

The concept of academic learning time has been applied in physical education through the development of two observation systems (Siedentop, Tousignant, & Parker, 1982). The underlying assumption is that improvement in time spent on motor responding [ALT-PE(M)] is related to improved pupil opportunity to learn which, in turn, affects achievement in physical education (Siedentop, Tousignant & Parker, 1982). Rife, Shute & Dodds (1985) compared the two Academic

Learning Time-Physical Education (ALT-PE) Observation System versions I and II. Version II (1982) focuses more directly on the motor engagement data, places a higher priority on the learner, regardless of teacher style, and a student behavior is coded during each interval. This data gives a clear picture of how students respond to general, knowledge, and motor instructions.

The ALT-PE instrument is popular for research in physical education because it provides a measure of time on task which has a strong relationship to learning (Rife, Shute & Dodds, 1985; Siedentop, Tousignant & Parker, 1982). Thompson (1988) in reviewing research studies utilizing the ALT-PE Observation systems states:

> At this point in time the research focus is on determining which variables correlate with pupil academic learning time and how these variables can be manipulated to increase opportunity to learn in physical education (p.67).

This evaluation is useful to alert the teacher to variables that provide positive educational experiences for students within their classes. O'Sullivan and Burroughs (1989) have studied the effects of improving teachers' managerial and instructional teaching strategies, in reducing 'wait time' and time spent 'off task', and increasing time spent in motor responding.

Research results on academic learning time in physical education have indicated that learners in physical education are usually engaged in subject related context activities for over half the class time and engaged in motor activity responses for approximately 1/4 of the time (Aufderheide, Knowles & McKenzie, 1981; Gagnon, Tousignant & Martel, 1989; Metzler, 1983; Placek & Randall, 1986; Ratliffe, 1986; Rife, Shute & Dodds, 1985; Shute, Dodds, Placek, Rife & Silverman, 1982; Siedentop, Tousignant & Parker, 1982; Thompson, 1988; Webster, 1987). Learner engagement time may vary according to lesson activities, but generally is low. The ALT-PE Observation System (1982) has been used to alter teacher interventions, so as to increase motor appropriate responses and to decrease time not engaged in lesson objectives (Aufderheide, Knowles & McKenzie, 1981; Ratliffe, 1987; Webster, 1987). Placek and Randall (1986) compared the ALT-PE results for classroom teachers and physical education specialists. Their findings indicate that physical education specialists appear to give more opportunities for students to practice and learn skills, while classroom teachers provide more game play opportunities. The differences were not significantly different between the two groups and both had learners appropriately engaged in motor activities for less than 16% of the time. Again, these low percentages demand attention.

Few studies have used the ALT-PE instrument with students with special needs, and the researchers focused most of the discussion on teacher effectiveness. Studies done have generally looked at students in adapted physical education settings. Webster (1987) studied adapted physical education classes and reported that motor appropriate responses increased with peer tutors present, regardless of the tutors' training. In a study of mainstreamed physical education classes, Aufderheide, Knowles & McKenzie, (1981) reported that regular students' ALT-PE measures were slightly higher than those of the handicapped students, but these differences were not statistically significant. Gagnon, Tousignant & Martel (1989) also looked at students with special needs in adapted physical education settings. Students were appropriately engaged for 16% of the class time, with variations depending on the lesson activity. The amount of time spent waiting (50%) was discussed as demanding serious attention for maximizing a student's use of time. Shute _et al_ (1982), in their study of integrated classes found that students with special needs were successfully motor engaged for 6% of the time compared with 13% for their classmates. In their study the number of observations for students with special needs was 15, while 132 observations were made of the students without special needs in the mainstream classes (Shute _et al_, 1982).

Therefore it is important to consider this when interpreting the difference between the two groups. However, as other studies have indicated the percentage of time that students, identified with special needs or not, spend successfully engaged in motor activities is very low.

The present study will determine the involvement of students in curriculum activities, and the nature of their inclusion based on measures of academic learning time. Comparisons will be made within integrated classes between students identified as having special needs and those students participating at an average level.

> Teaching is not a process of doing things to a student, but rather one of engaging a learner in meaningful goals and activities. This theme of mutuality - our assisting children and our learning from them - is central to an understanding of children's development.
>
> (Knoblock, 1987, p.204)

According to Knoblock (1987), to be an effective teacher, it is important to develop and structure the learning environment and program to meet the individual needs and goals of the learner. These same values and objectives must exist for integrated physical education classes as well.

Pilot Study

A pilot study was conducted in two elementary school physical education classes in the Catholic School District, in Edmonton, Alberta. The purpose of the pilot study was to determine the usefulness of the modifications made to the Academic Learning Time-Physical Education (ALT-PE) instrument (Siedentop, Tousignant & Parker, 1982) and to determine the relevance of questionnaire items in assessing the participation of students with special needs in integrated classes. An integrated grade one class and an integrated grade four/five class were videotaped to determine the nature of participation of students within activities. Student dyads consisted of one student identified as having special needs and one student, of the same gender, who participated at an average level for his or her respective classes. Students were selected by the researcher with assistance from the physical education teacher after the completion of videotaping.

Observations were done using a modification of the Academic Learning Time-Physical Education (ALT-PE) Observation System (Siedentop, Tousignant, & Parker, 1982). This instrument was designed to measure student behaviors in the physical education class. ALT-PE has been used in research on teacher effectiveness, and student achievement (Siedentop, Tousignant & Parker, 1982; Thompson, 1988).

Implementing this system requires the observation of physical education classes and coding of the class context behaviors (as a group) and of individual learner responses to instruction. Some changes were made to the coding form to anticipate teacher and student responses to integration. In the literature dealing with integration many authors (Aufderheide, McKenzie & Knowles, 1982; Biklen, 1985; Knoblock, 1987) emphasize the importance of individualized instruction.

> The aim of intervention is to help the child cope with demands, this may mean changing some of the demands placed on the child in the lesson, as well as giving the child the opportunity to improve responses.
>
> (Cutforth, 1988, p. 24)

Aufderheide, Knowles & McKenzie (1981), concluded from the research on individualized instruction that,

> it [individualized instruction] results in increased performance or in performance that is equal to that achieved through traditional methods ... teachers who individualize instruction provide more learning time for their students (p.22, 25).

The ALT-PE first level decisions are based on teacher instructions to the majority of the class. With the ALT-PE (1982) form, any individualized teaching by teachers would go unnoticed. For this reason, four categories were added to the coding instrument in the Context level, Subject Matter Motor category: Skill Practice change, Scrimmage/routine change, Game change, and Fitness change. Category definitions are presented in Appendix A.

Three new categories were also added to the Learner Involvement level decisions in the Motor Engaged section. The new categories were: Motor Appropriate/Aide, Motor Inappropriate/Aide, and Motor Supporting/Aide (Refer to Appendix A for definitions of new codes). These changes were made to address the presence of teacher aides, and/or student aides in the classroom. When a student relied on assistance to carry out tasks there was no way to record this assistance with the ALT-PE form (1982). These categories provided data on the forms of assistance provided to individual learners within the class. This allowed for the categorization of motor appropriate responses for activities in which the students required assistance, but were still involved in appropriate practice, scrimmage, game, or fitness content behaviors.

Six second interval recording was utilized and percentages of total time were tabulated for each category item (Refer to Table 1 for presentation of results). Due to the small sample size for teacher questionnaires (two), these results were discussed with respect to each specific class situation.

The students with special needs participated in all aspects of their classes with assistance from student and teacher aides. The majority of this assistance was in the form of physical prompting and manipulation. The videotaped lessons (movement exploration and aerobics) were geared to individual responding, so specific criteria and instructions were not changed for individual students. Thus the new categories of individualized instruction (Skill practice change, Scrimmage/routine change, Game change and Fitness change) were not needed during the pilot study. However, the researcher felt that individualized teacher directions are important to improving participation levels and fostering inclusion of all students within a physical education environment, and would become more apparent when lessons were focussed on other content. Therefore they were kept in the modification of the ALT-PE (1982) Observation system.

Recommendations from this study included:

(1) Student triads not dyads should be used to get more representative data for an 'average' performance.

(2) The new Learner Involvement category of Motor Supporting/Aide was redundant. Any 'helping' behavior could be identified using the Motor Supporting code.

(3) ALT-PE categories were appropriate to code student's behavior in the integrated physical education class.

Table 1

Mean Percentages for Context And Learner Involvement Behaviors (Modified ALT-PE, 1982): Pilot Study Results. N=4.

STUDENTS:	SPECIAL NEEDS		AVERAGE ABILITY	
GRADES:	1	4/5	1	4/5
CONTEXT LEVEL				
GENERAL CONTENT				
Transition	4	-	6	-
Management	8	-	10	5.6
Warm Up	-	-	-	-
SUBJECT MATTER KNOWLEDGE				
Technique	30	-	34	-
Strategy	-	-	-	-
Rules	-	-	-	-
Social Behavior	-	-	-	-
SUBJECT MATTER MOTOR				
Skill Practice	58	-	50	-
Scrimmage/Routine	-	-	-	-
Game	-	-	-	-
Fitness	-	97.3	-	94.4
Skill Practice change	-	-	-	-
Scrimmage/Routine change	-	-	-	-
Game change	-	-	-	-
Fitness change	-	2.8	-	-
LEARNER INVOLVEMENT LEVEL				
NOT MOTOR ENGAGED				
Interim	-	-	-	-
Waiting	-	-	8	-
Off task	12	33.3	18	-
On Task	6	-	4	2.8
Cognitive	26	-	32	-
MOTOR ENGAGED				
Motor Appropriate	-	2.8	38	83.3
Motor Inappropriate	-	-	-	13.9
Motor Appropriate/Aide	30	38.9	-	-
Motor Inappropriate/Aide	26	26	-	-
Motor Supporting	-	-	-	-

METHODS

Participants

The participants in this study were elementary school teachers and students involved in integrated physical education programs. Seven teachers were selected based on their willingness to be involved and videotaped. Nine students identified as having special needs were included in this study (Refer to Table 2). The four students with physical disabilities required mechanical aids (wheelchairs and/or crutches) for mobility. Only the boy in grade six was able to move independently without. his crutches, albeit at a slow pace and in an inefficient manner. The students with mental/emotional needs in the grade two/three and grade six classes were overly active, and required frequent instructions to stay on task. The three remaining students who were identified with either mental or emotional needs tended to keep to themselves, displaying avoidance behaviors.

Students were placed in triads, matched by gender. The students without special needs were of average physical ability, as judged by the teacher and researcher after videotaping. An information letter and consent form was sent to the parents of all students within each class. Signed parental consent forms for videotaping were obtained.

Table 2
Participant Information: Students With Special Needs

TEACHER	GRADE	NUMBER	GENDER	NATURE OF DISABILITY
C.R.	2/3	1	M	MENTAL/EMOTIONAL
C.R.	4/5	1	F	PHYSICAL
P.E.	5/6	2	F, M	PHYSICAL, MENTAL
C.R.	6	1	M	PHYSICAL
C.R.	6	1	M	EMOTIONAL
P.E.	6	1	F	EMOTIONAL/MENTAL
P.E.	6	2	F, M	PHYSICAL, EMOTIONAL

Note: P.E. - classes taught by physical education specialists
C.R. - classes taught by classroom teachers

Design

This research is designed as a descriptive study investigating integrated elementary physical education classes. The research questions address two main areas of student involvement in integrated classes: the nature of participation in curriculum activities, and student inclusion in motor content. Two forms of data collection were utilized in the present study to collect information on the four research questions. The first two research questions which addressed the nature of participation were answered using data collected in a teacher questionnaire. The second two research questions indicating student inclusion in motor content areas of their classes were answered using a modification of the ALT-PE (1982) observation instrument. Data collection and analysis procedures will be discussed under the two main research areas.

Nature of Participation in Curriculum Activities

Questions 1 and 2 relate to the nature of involvement of students with special needs in class activities, and the class organizational groupings that are used to attain program objectives. The data for these two questions were collected through questionnaires. A preliminary questionnaire was distributed to elementary school teachers in School District #20, Saint John, New Brunswick to determine their views and concerns in regards to the integration of students with special needs into the regular physical education program. The term 'special needs' was defined as referring to students requiring individual education plans to meet their educational needs. Questionnaires were sent to thirty-six elementary schools. Of the seventeen schools responding, three schools indicated they had no students identified as having special needs in their schools, so the rate of return was 47%. More than one teacher responded from the schools for a total of 32 teacher respondents.

The Instrument

The questionnaire item regarding the form of participation in curriculum activities for students identified with special needs was adapted from Watkinson and Bentz' (1986) Cross-Canada survey (Refer to Appendix B). The question provided a list of lesson activities and asked teachers to indicate the participation level of the students with special needs in each activity. The activities listed from Watkinson and Bentz' (1986) study were those taught most frequently at the elementary level. These were consistent with the New Brunswick curriculum as well. The six choices for student involvement were: does not participate, participates as observer, involved in a special passive role, involved in a special active role, participates in alternate physical activity, or participates fully. Respondents were also asked to record the assistance provided, by a teacher aide or a student aide. Although teachers were asked to indicate all appropriate responses, they only selected one reply for each of the curriculum activities. The curriculum activities listed were those most frequently reported in elementary school programs (McCardle, 1987; Alberta Education, 1983). The activities were dance, fitness, gymnastics, games, track and field, outdoor pursuits, aquatics, ball skills, and movement oriented activities. These activities lend themselves to inclusion and are appropriate to meeting program objectives of fitness, participation and personal leisure objectives. Teachers were also given the opportunity to add 'other' curriculum activities that may have been included in their program.

The item that addressed the situational structure of activities (cooperative, competitive, individual and reciprocal) was developed using the framework of analysis provided by the integration literature (Biklen, 1985; Robbins, 1990; Slavin, 1983). Authors attribute many of the integration successes to certain class structures and groupings. Teachers were asked to indicate the percentages of time (over the course of the year) that they spend in cooperative, competitive, individual and reciprocal class groupings.

Questionnaires were distributed to expert teachers in a school in Nova Scotia that is responsible for integration of students in all subject areas, including physical education, to validate the questions for use in this study. These teachers were asked to comment on the clarity and usefulness of questions in providing answers. Changes were made based on their input.

Questionnaires allow researchers to get a random sample of the larger population. By increasing the number of respondents, the external validity may also be increased.

In order to attain reliable answers to the questionnaire items, anonymity of those replying was ensured. However, utilizing questionnaires presents the possibility that repondents may be answering what they assume the researcher to want (Agnew & Pyke, 1987; Thomas & Nelson, 1985). Due to the regional climate in New Brunswick surrounding the issue of integration, teachers were likely interested in expressing their views and concerns. Therefore, truthfulness in responses was not considered to be a problem.

Data Collection and Analysis

The questionnaire items were tabulated as frequency counts for the participation of students with special needs in class activities. The form of support provided to these students was also tabulated as frequency counts and reported as percentages. The nature of their participation was described.

The item dealing with the class organizational groupings was presented as percentages of time that teachers spent in each of the four categories (cooperative, competitive, individual and reciprocal). Organizational groupings and the use of individualized instruction to students with and without special needs were compared across the triads in integrated physical education classes.

Student Inclusion in Motor Content

Research questions 3 and 4 address the participation rates of students in subject matter activities. The answers describe how teachers and students spend their time during integrated physical education classes and indicate when teachers provide individualized instruction.

To address questions 3 and 4, integrated physical education classes were videotaped. The elementary school physical education coordinator was contacted to suggest the names of teachers who had students with special needs integrated in physical education classes (district 20). Fourteen teachers were initially approached to be involved. Nine teachers agreed to be involved in the study and distributed parental consent forms to their respective classes (all elementary teachers in this district teaching physical education are not physical education specialists). Five teachers decided not to be involved due to the number of parents not willing to have their children videotaped. Some refusals came from parents of students not identified as having special needs. A possible explanation was the controversy over the issue of integration present within the province of New Brunswick during the time of taping. Public hearings were held at this time within the city also, as outlined previously in the present report.

Due to the small sample size of four teachers from Saint John, a decision was made to videotape elementary physical education specialists from Fredericton, New Brunswick. Five teachers agreed to be involved, and again, two were unable to take part due to lack of parental consent. In this case, it was the parents of the students being integrated who refused to participate. These teachers travel among 2-3 schools, teaching one physical education period per week, per class. In summary, seven teachers were involved in the study, four classroom teachers who were responsible for teaching physical education to their own class, and three itinerant physical education specialists.

The Instrument

A modification of the ALT-PE observation system was used to collect the quantitative data for the present study. The recording of the ALT-PE system (1982) yields data reflecting: a) setting or learning environment as set by the teacher, b) content of instruction, c) responses of learners, and d) the difficulty of the responses when the learner is engaged in the activity. Modifications to the (ALT-PE) Observation System (1982) were made to account for individualized instruction strategies, learner support and assistance. Definitions of codes are described in Appendix A. The instrument contains two major decision tiers: 1. **Context** of setting under observation, and 2. **learner involvement** of students being observed (see Appendix C for a copy of the data collection form). Context level decisions refer to what the class, as a whole, is doing. This level is divided into three sections: general content, subject matter knowledge and subject matter motor. In general content areas, the teacher is spending time organizing the class and getting students ready for participation in lesson objectives. Students have not been directed to engage in motor activities.

> GENERAL CONTENT:
>
> Transition activities involve moving from space to space, getting into group formations, or organizing equipment.
> Management activities are unrelated to instruction. This may include the discussion of intramurals, class trips, or general student behavior in the gymnasium.
> Warm Up activities are not directly related to the lesson objectives, and prepare the students to engage in further activity or serve a cool down function at the end of classes.
> (Siedentop, Tousignant & Parker, 1982)

In the subject matter knowledge areas, the teacher is giving information to the students about a particular task or activity. This could involve demonstrations of skills, or explanations of how to do the task.

SUBJECT MATTER KNOWLEDGE

Technique information provides the 'how to' of doing a skill.
Strategy information provides plans of action for performing (relating to the 'when' and 'why' of using skills).
Rules information relates to the regulations governing activities, and is followed by an opportunity to apply this information.
Social behavior provides information regarding appropriate and inappropriate ways of behaving within the context of activity (e.g. 'sportsmanship', reporting one's own violations, or information about how to address umpires and referees.
(Siedentop, Tousignant & Parker, 1982)

The subject matter motor categories are coded when teachers have instructed learners to be actively involved with the class activity. Also recorded are instances of individualized instruction.

SUBJECT MATTER MOTOR:

Skill practice time is devoted to the practice of a skill or a series of skills, outside of the applied context. The goal is skill development
Practice change time is as the above, except specific students are given different tasks, directions or criteria for performance/success.
Scrimmage/Routine time is devoted to the refinement or extension of skills in a simulated or applied context. Students may be involved in a half-court 5 on 5 basketball game or complete free exercise routine, with the teacher providing frequent instructions and feedback to the learners.
Scrimmage change is as the above, except the teachers have individualized their instructions for specific students.

Game time refers to the application of skills in a game or setting in which learners perform without teacher intervention, for example a volleyball game, a complete balance beam routine, a folk-dance or race.
Game change time is as above, with specific individualized instruction given to specific learners.
Fitness time is devoted to alter the physical state of the learner in terms of strength, cardiovascular endurance, or flexibility (e.g. aerobic dance, distance running or agility training). The students must be involved for over 10-15 minutes in regular, vigorous activity.
Fitness change time is as the above except the teacher has used individual instruction strategies to encourage students to be involved.
(Siedentop, Tousignant & Parker, 1982)

Learner Involvement level categories describe the participation of individual learners in the class. This level is divided into two sections, 'not motor engaged' and 'motor engaged'.

NOT MOTOR ENGAGED:

Interim tasks refer to non-instructional parts of an ongoing activity e.g. retrieving equipment, or changing court sides.
Waiting refers to time spent waiting in line for a turn, or waiting for the next teacher instructions.
Off Task behaviors refer to doing activities that one should not do, or doing activities other than the class activity directed by the teacher.
On Task behaviors refer to carrying out assigned non-subject matter activities.
Cognitive responding includes listening to teacher instructions, or watching a demonstration. Coder assumes cognitive involvement without knowing if the learner understands.
(Siedentop, Tousignant & Parker, 1982)

Motor engaged categories involve the students responding to subject matter motor activities. They are actively participating in the class objectives.

> MOTOR ENGAGED:
>
> Motor Appropriate responses are those trials by the learner that result in a high degree of success. Motor Appropriate/Aide responding is as the above, except the learner requires some form of assistance or support to master the objective. Motor Inappropriate involves the student in the subject matter motor activities, but the task is too hard or too easy to complete. Motor Inappropriate/Aide category is as the above, except the student is receiving assistance. Motor Supporting behaviors include any instances where a learner assists or helps e.g. throwing a volleyball to a partner who is practicing volleying, or clapping a rhythm to a dance.
>
> (Siedentop, Tousignant & Parker, 1982)

Validity

INTERNAL: The internal validity of the data collection was increased by obtaining a large number of observations. The results were considered to be more valid because these observations were evenly distributed across time. It was assumed this gave an adequate picture of what happened during the total length of the observation periods. The data were collated using the CALCUDAT micro computer program written by Brent Taylor. This program has been used previously with the ALT-PE observation system and has been found to be reliable (Thompson, 1988, p.106). The instrument itself has been tested and is considered to be a valid tool for measuring academic learning time in a physical education setting (Siedentop, Tousignant, & Parker, 1982; Metzler, 1983).

EXTERNAL: This refers to the generalizability of the results to the larger population of the study sample The integrated physical education settings that were videotaped were representative of the status of integration in elementary schools within the province. Both physical education specialists and classroom teachers were participants in this study. A wide range of activities were videotaped. The students participating in this study were representative of students with special needs who are integrated in the province, and included students with special physical, mental and emotional needs.

Reliability

The ALT-PE (1982) system attains reliable results with the short interval periods (six seconds observe - six seconds record). The data is more reliable due to the shorter interval, because the decision process is easier and more accurate. The reliability is also enhanced with the interval system because inter observer agreement (IOA) can be established by interval comparisons (Metzler, 1983; Thompson, 1988).

Two observers were trained according to the manual as developed by Siedentop, Tousignant & Parker (1982). (Refer to Appendix D for steps involved in this process). A master videotape was coded from a pilot study class, and used for training purposes in reaching interobserver reliability. For one observer, a second videotape was prepared for additional instruction and practice in order to reach an acceptable reliability percentage. Analysis of tapes began after observers reached 80% interobserver agreement.

Interobserver agreement was maintained throughout the study. Each observer was checked for reliability using the experimenter as the criterion observer. After every three or four classes were coded, observers were checked. Thus 23% of all observed classes were checked. A Scored Interval procedure was used to determine interobserver rates (Metzler, 1983, p.187):

$$\text{S-I} = 100\% \times \frac{\text{Agreements}}{\text{Agreements} + \text{Disagreements}}$$

A total of thirteen classes were checked to obtain the reliability measures. Reliability ranges and means are outlined below by category subsection:

CONTEXT LEVEL:	Range	Mean
General content:	81.4 - 100.0%	87.6
Subject matter knowledge:	80.0 - 86.4	84.
Subject matter motor:	93.0 - 97.3	94.8
LEARNER INVOLVEMENT LEVEL:	Range	Mean
Motor engaged:	81.0 - 100.0	93.0
Not motor engaged:	78.9 - 90.2	83.6

Since the most important dependent variables were considered to be those measures at the Learner Involvement Level, separate IOA scores were established at the level of analysis for the following categories of behavior:

	Range	Mean
Motor Appropriate	81.0 - 94.5	85.4
Motor Inappropriate	87.0 - 100.0	93.3
Waiting	81.0 - 90.0	85.2
Off Task	78.9 - 83.5	81.8

All four rates were above the percentages recommended by Siedentop, Tousignant & Parker (1982).

Data Collection and Analysis

The ALT-PE system is designed to determine the degree to which time in physical education is used in a way to enhance student learning and performance. The modified system (ALT-PE, 1982) is comprised of twenty-five categories in the two division levels: context of class and learner involvement in activities. Percentages of time in each category were tabulated.

The motor engaged responses were compared between individual student's within each class. Calculations of mean percentages, standard deviations and range of scores were presented per category item (ALT-PE measures), comparing students identified with special needs and those participating at an average ability level within integrated physical education lessons.

Procedures

Fifty-five physical education classes, involving seven teachers, were videotaped for this study. Twenty-four of these classes were taught by physical education specialists. Thirty-one classes were taught by classroom teachers, who were also responsible for teaching the physical education program. An interval recording procedure was utilized to collect data. The participants were observed for six seconds, and then six seconds were allotted to code the children's activities during that period of time.

The teachers' voices were recorded during classes, with the videotaping. The instructions given by teacher aides were not mechanically recorded. The researcher asked about their input after each lesson. In most instances their input was generally supporting the class instructor's directions, and assisting their students in joining with the class. Teacher aides made infrequent changes to instructions given by the teacher.

The student participants were selected in triads. One student was identified by each teacher as having specific educational needs. The other two participated at an average level within their physical education class. Teachers were not aware of which of the control students were targeted until after taping. At the completion of videotaping, teachers were asked which students they would classify as participating at an average ability level for their classes, and they were selected by the researcher.

Table # 3 shows the activities videotaped and the total number of lessons coded for each integrated physical education class.

Ethical Considerations

Permission to conduct this study was sought through the appropriate University channels. Approval was obtained from each school district to approach teachers to ascertain their willingness to be involved. Written consents were obtained from these districts. Teachers and students were informed of the study and of the voluntary nature of their participation. Teacher and parental consent forms were obtained so that physical education classes could be videotaped. Confidentiality of their involvement was ensured. Participants involved in the study will not be referred to by individual or school names. Students and teachers were able to withdraw at any time without question.

Table 3

Number of Lessons Videotaped per Curriculum Activity

TEACHER	ACTIVITY	# OF LESSONS
1	GYMNASTICS	3
	BASKETBALL	1
	FLOOR HOCKEY	2
	SOCCER BASEBALL	1
	GAMES	1
2	BASKETBALL	1
	SOCCER BASEBALL	3
	SOCCER	1
	CANADA FITNESS TESTING	2
3	GYMNASTICS	3
	BASKETBALL	3
	VOLLEYBALL	2
4	GYMNASTICS	1
	SOCCER BASEBALL	3
	BASEBALL	1
	CANADA FITNESS TESTING	2
	GAMES	1
5	BASKETBALL	3
	SOCCER BASEBALL	1
	BASEBALL	1
	GAMES	1
	FLOOR HOCKEY	1
	VOLLEYBALL	1
6	GYMNASTICS	3
	BASKETBALL	4
	VOLLEYBALL	1
7	GYMNASTICS	2
	BADMINTON	3
	VOLLEYBALL	3

RESULTS

This study investigated opportunities for students to learn in integrated elementary school physical education classes. Data was collected using teacher questionnaires and systematic observation in integrated class settings. The purpose was to describe what is presently occurring in physical education classes that have students integrated with special needs. Several dependent variables were considered that have been identified in the literature as affecting student learning; including specific participation roles of students with special needs, amount of support provided to students, the use of class organizational groupings, time spent in academic learning time-physical education motor content areas, and teachers' use of individualized instruction.

Nature of Participation in Curriculum Activities

Teacher questionnaires were distributed to elementary school teachers responsible for teaching physical education. Teachers were asked to indicate which curriculum activities they taught, and were to describe the participation of students with special needs in each activity. Seven response choices dealt with the role of participation (for example, in special roles, or alternate activities) and support provided (for example teacher or student aides).

Table 4 indicates the frequency of replies in each curriculum activity. The seven response choices were not intended to be mutually exclusive, but in fact all participants checked only one response per activity.

The majority of teachers responding indicated that students with special needs participated fully in their curriculum activities. Special active roles or alternate activities were reported as strategies used to include students in activities. On one occasion, a teacher reported the use of a special inactive role. The activities most frequently reported as part of the curriculum by teachers with students integrated into physical education were: fitness, games, ball skills, movement-oriented activities, and gymnastics activities.

The amount of support provided to students with special needs refers to the presence of either a teacher or student aide. Frequencies were tabulated for each curriculum activity. Four out of 20 respondents used teacher aides in game activities, 3 out of 17 in gymnastics activities, 3 out of 19 in ball skills, and 3 out of 24 in fitness activities. Percentages were also tabulated to indicate the presence of teacher aides for each curriculum activity. Teachers reported the presence of teacher aides in a percentage range of 11.1% - 28.6% for the curriculum activities. Student tutors were not used as frequently.

Table 4

Frequency Of Replies For The Extent of Physical Participation In Curriculum Activities, And The Degree Of Support Provided For Students With Special Needs (N=32)

	NUMBER OF REPLIES	PASSIVE ROLE	OBSERVER	ACTIVE ROLE	ALTERNATE ACTIVITY	FULLY INVOLVED	TEACHER AIDE	STUDENT AIDE
FITNESS	24	0	2	3	1	14	3	1
GAMES	20	0	1	3	0	11	4	1
BALL SKILLS	19	0	1	2	0	11	3	2
MOVEMENT-ORIENTED	18	0	1	2	1	11	2	1
GYMNASTICS	17	0	1	1	2	9	3	1
OUTDOOR PURSUITS	14	1	0	1	0	9	2	1
TRACK AND FIELD	9	0	2	1	0	5	1	0
AQUATICS	7	0	0	1	0	4	2	0
DANCE	4	0	0	1	0	2	1	0
OTHER:								
BASKETBALL	3	0	0	0	1	2	0	0
VOLLEYBALL	3	0	0	0	1	2	0	0
SOCCER	3	0	1	0	0	2	0	0

Few teachers identified the use of student aides. The percentage range was between 4.2% - 10.5% for those teachers reporting the presence of student aides for the activities indicated in Table 4.

The second questionnaire item asked teachers to indicate the percentages of time, over the course of a year that they spend in competitive, cooperative, reciprocal or individual contexts. Thirty-three teachers responded, including the seven teachers who were videotaped. The averages of reported percentages show 38% of the time is devoted to individual work, 35% to cooperative situations, 20% to reciprocal or partner-work, and 17% to competitive contexts.

Student Inclusion in Motor Content

An adaptation of the Academic Learning Time-Physical Education Observation System (Siedentop, Tousignant, & Parker, 1982) was utilized to collect the data. This system requires the coding of general class behavior (as directed by the teacher) and individual learner responses to instruction. Students with special needs were matched with two students in their class, of the same gender, who participated at an average ability level. Context level decisions are categorized in three subsections: General Content, Subject Matter Knowledge, and Subject Matter Motor. Each category is explained in the Methods section of this report.

Table 5 shows mean percentages of time that all students participated in the behavioral categories, at the context level. Teachers allocated 64.2% of the time to subject matter motor activities, 26% to general content, and 9.9% to subject mater knowledge areas.

Table 5

Mean Percentages Of Time That Students Participated In Modified ALT-PE (1982) Context Behaviors (N=27)

CONTEXT LEVEL	
GENERAL CONTENT	26.0%
Transition	18.9
Management	1.5
Warm Up	5.6
SUBJECT MATTER KNOWLEGDE	9.9%
Technique	8.9
Strategy	0.4
Rules	0.5
Social Behavior	0.1
SUBJECT MATTER MOTOR	64.2%
Skill Practice	27.7
Scrimmage/Routine	8.4
Game	22.6
Fitness	1.1
P change	2.6
S change	1.1
G change	0.7
F change	0.0

The seven teachers observed in this study provided a high percentage of time in subject matter motor activities, translating into opportunities for students to respond, and ultimately to learn the subject matter. These opportunities were most frequently provided to the class, as a whole. Only a small portion of time (4.4%) was devoted to changes in teacher instructions for individual learners.

Table 6 summarizes responses of individual learners to instruction. Although 64.2% of the class time was devoted to subject matter motor activities, students spent the majority (71.8%) of their time waiting for instructions or to participate, preparing to respond, responding cognitively, through listening to teacher explanations and/or watching demonstrations, and carrying out non-subject matter instructions. Students were involved in motor activities and responded successfully for 25.4% of the class time. The percentage of involvement of students given assistance to respond (Appropriate/Aide and Inappropriate/Aide categories), was minimal (0.4%),

Table 6 summarizes reponses of individual learners to instruction. Although 64.2% of the lss time was devoted to subject matter motor activities, students spent the majority (71.8% of heir time waiting for instructions or to participate, preparing to respond, responding cognitively, through listening to teacher explanations and/or watching

Table 6

Mean Percentages Of Time That Students Participated In Modified ALT-PE (1982) Learner Involvement Behaviors (N=27)

LEARNER INVOLVEMENT LEVEL	
NOT MOTOR ENGAGED	71.8%
Interim	10.0
Waiting	29.6
Off-task	4.9
On-task	11.9
Cognitive	15.5
MOTOR ENGAGED	28.2%
Motor Appropriate	25.4
Motor Inappropriate	1.6
Appropriate/Aide	0.3
Inappropriate/Aide	0.1
Motor Supporting	0.9

demonstrations, and carrying out non-subject matter instructions. Students involved in motor activities and responded successfuly for 25.4% of the class time. The percentage of involvement of students given assistance to respond (Appropriate/Aide and Inappropriate/Aide categories), was minimal (0.4%), indicating that students participated independently in class activities.

Further analysis was done to determine differences in modified ALT-PE responses between learners identified as having special needs and learners participating at an average ability level within their classes. Table 7 displays the means and standard deviations for ALT-PE categories at the context level for both groups. Context level decisions in general content, and subject matter knowledge, did not show major differences between students identified with special needs and those students participating at an average ability level.

Opportunities provided in the subject matter motor categories showed some differences. Skill practice time was comparable (28.0% for students with special needs and 29.2% for students participating at an average level), yet differences were apparent for time spent in game and scrimmage/routine activities (23.7% for students identified as having special needs and 32.3% for students participating at an average ability level). Few changes were made to individualize participation opportunities for students in activities. Ten percent of the time was used to give different instructions or criteria for performance to

Table 7

Modified ALT-PE (1982) Context Level Percentages For Students In Integrated Physical Education Classes

	STUDENTS WITH SPECIAL NEEDS (n=9)		STUDENTS PARTICIPATING AT AN AVERAGE LEVEL (n=18)	
CONTEXT BEHAVIORS:	MEAN	S.D.	MEAN	S.D.
GENERAL CONTENT				
Transition	19.0	3.4	20.0	3.5
Management	1.6	1.9	1.3	1.8
Warm Up	5.1	2.5	5.0	2.5
ttl.	25.7%		26.3%	
SUBJECT MATTER KNOWLEGDE				
Technique	10.2	5.0	9.7	4.2
Strategy	0.4	0.5	1.1	0.9
Rules	0.6	0.6	0.5	0.5
Social Behavior	0.1	0.2	0.2	0.2
ttl.	11.3%		11.5%	
SUBJECT MATTER MOTOR				
Skill Practice	28.0	15.8	29.2	15.4
Scrimmage/Routine	6.8	5.4	8.3	7.9
Game	16.9	14.8	24.0	17.9
Fitness	0.9	2.5	0.8	1.2
P change	6.4	8.5	0.7	1.9
S change	2.2	5.9	0.1	0.5
G change	1.7	4.2	0.03	0.1
F change	-	-	-	-
ttl.	62.9%		63.13%	

students identified with special needs, in comparison to 1.63% to other students in the class participating at average ability levels. For example, during a volleyball game, a beach ball was used at one net, rule modifications were made to the number of hits allowed on one side, and serving lines were moved up. The teacher opened participation to anyone in the class, while a traditional game of volleyball was played at the other net. Four or five students besides the student with special needs played the modified game. It is interesting to note that two of the students who selected the modified game were quite skilled in volleyball.

Table 8 displays the means and standard deviations for the ALT-PE (1982) categories at the learner involvement level. Students with special needs spent less time in interim responding (6.1%), and more time in off task responses (8.4%), than the students participating at an average ability level (10.9% and 4.3% respectively). Waiting, on task, and cognitive responses showed no real differences between the two groups. It is important to note the high percentages reported for both groups in waiting time (29.2 for students with special needs and 30.5 for the average students).

Although students with special needs had a higher percentage of time in motor engaged activities, the difference was not great. Even though a small percentage of time was indicated in the Motor Inappropriate category, students with special needs had twice the amount for students participating at an average level (3.0% and 1.3%, respectively). Differences were reported in the categories of motor appropriate/aide and motor inappropriate/aide, reflecting increased assistance for the students identified as having special needs (1.2%), than for those at an average level for their classes (0.02%). Again this difference is minimal and the amount of assistance provided to learners in integrated physical education classes was minimal.

Although mean percentages in learner involvement behaviors reflected few differences between the two groups, there were differences in the variability of scores, as indicated by the standard deviations, especially in the motor engaged responses. The reported scores from this study showed there was greater variance in all motor engaged responses for learners identified as having special needs.

Because teachers were instructing different lessons, time spent successfully engaged in motor activities was determined based on specific activities. Table 8 indicates activities listed in order based on motor appropriate

Table 8

Modified ALT-PE (1982) Learner Involvement Level Percentages For Students In Integrated Physical Education Classes

	STUDENTS WITH SPECIAL NEEDS (n=9)		STUDENTS PARTICIPATING AT AN AVERAGE LEVEL (n=18)	
LEARNER INVOLVEMENT BEHAVIORS:	MEAN	S.D.	MEAN	S.D.
NOT MOTOR ENGAGED				
Interim	6.1	8.0	10.9	5.6
Waiting	29.2	9.3	30.5	8.5
Off-task	8.4	7.3	4.3	3.5
On-task	10.5	4.5	12.2	3.9
Cognitive	17.8	7.6	18.0	9.6
	ttl.72.0%		75.9%	
MOTOR ENGAGED				
Motor Appropriate	27.7	10.3	26.6	6.5
Motor Inappropriate	3.0	2.0	1.3	1.1
Appropriate/Aide	0.9	0.9	0.02	0.1
Inappropriate/Aide	0.3	0.6	-	-
Motor Supporting	0.5	1.3	1.0	1.2
	ttl.32.4%		28.9%	

percentages. Games were reported to offer the most opportunities for responding appropriately. The games played in these three lessons were: cooperative parachute games, modified ring volleyball (different set of playing rules than traditional volleyball), and one lesson of low organized games, such as leapfrog, hopping relays, and skipping. Gymnastics lessons provided the least amount of time for successful participation (16.5%). There appeared to be no difference in these measures for students with and

Table 9
Percentage Of Motor Appropriate Responses By Activity Type For All Participants

ACTIVITY	#LESSONS CODED	% MOTOR APPROPRIATE
GAMES	3	39.8
BASEBALL	2	36.7
BADMINTON	3	30.2
SOCCER BASEBALL	8	30.0
SOCCER	1	28.4
FLOOR HOCKEY	3	25.2
BASKETBALL	12	23.7
CANADA FITNESS TESTS	4	23.5
VOLLEYBALL	8	23.5
GYMNASTICS	12	16.5

without special needs. Table 10 provides percentages for the modified ALT-PE (1982) behaviors observed for physical education specialists and classroom teachers responsible for teaching the physical education program to their class. Physical education specialists spent 15.2% of their class time in subject matter knowledge content, while classroom teachers devoted only 6.0% of time to this area. This difference was reversed for subject matter motor areas.

Table 10

Percentages for Modified ALT-PE (1982) for Classroom Teachers And Physical Education Specialists

MODIFIED ALT-PE (1982)	TEACHERS: CLASSROOM (N=4)	SPECIALISTS (N=3)
CONTEXT LEVEL DECISIONS		
GENERAL CONTENT		
Transition	19.1	18.7
Management	0.2	3.1
Warm Up	6.7	4.2
ttl.	26.0	26.0
SUBJECT MATTER KNOWLEDGE		
Technique	5.3	13.7
Strategy	0.3	0.6
Rules	0.3	0.8
Social Behavior	0.1	0.1
ttl.	6.0	15.2
SUBJECT MATTER MOTOR		
Skill Practice	21.0	36.6
Scrimmage/Routine	9.9	6.3
Game	30.1	12.7
Fitness	1.9	-
Skill Practice Change	2.3	2.9
Scrimmage/Routine Change	1.8	0.1
Game Change	1.1	0.2
Fitness Change	-	-
ttl.	68.1	58.8
LEARNER INVOLVEMENT LEVEL DECISIONS		
NOT MOTOR ENGAGED		
Interim	10.2	9.8
Waiting	33.3	24.6
Off Task	2.5	8.1
On Task	14.0	9.1
Cognitive	8.2	25.2
ttl.	68.2	76.8
MOTOR ENGAGED		
Motor Appropriate	28.7	20.9
Motor Inappropriate	1.3	1.5
Motor Appropriate/Aide	0.2	0.4
Motor Inappropriate/Aide	-	0.2
Motor Supporting	1.7	0.2
ttl.	31.9	23.2

Classroom teachers devoted 68.1%, and physical education specialists, 58.8%. The amount of time that physical education specialists concentrated on skill practice 36.6%, while classroom teachers spent 21.0%. Another main area of difference was in time spent in game activities. Classroom teachers spent 30.1% in this area, while physical education specialists provided games for 12.7% of the time. The specialists tended to provide more skill instruction with some opportunities to apply the skills in game situations, while classroom teachers spent more time in playing the game.

Translated into student opportunities to respond, those taught by classroom teachers spent 31.9% of their time motor engaged. Students of the physical education specialists spent 23.2% of their time in motor engaged responding. Correspondingly, learners were cognitively involved 25.2% of the time when instructed by physical education specialists, and 8.2% of students' time was spent cognitively involved when taught by classroom teachers. Both groups of students spent the majority of time waiting, 33.3% and 24.6%, respectively for classroom teachers and physical education specialists.

Teachers used individualized instructions for individual learners for 4.4% of the time (Refer to Table 4). This data will be thoroughly presented. The specific forms of support given to students who were videotaped are described here according to each class situation, with learners' subject matter motor engaged responses outlined. An average percentage was tabulated for the two learners who participated at an average level in their classes.

Different instructions and criteria for performance were not given to students in class #1. During a small portion of motor engaged time (0.8%), specific learners were given individual assistance to successfully complete the tasks. Physical assistance was provided in completing a box horse move during a gymnastics lesson. The same form of assistance was provided for the learner with special needs, as for other students in class.

Changes in instructions were given by the teacher in Class #2 for 39% of the time. A teacher aide was present for the student identified with special needs. Alternate activities were provided in a hallway for two class lessons, outside of the gymnasium, by the teacher aide. These activities focused on improving range of motion, strength, and mobility in using a walker and a wheelchair. The broad jump of the Canada Fitness Test was modified to one strong push from the wheelchair, and bean bags for the shuttle run were placed on a chair so the student could reach them independently. During soccer baseball games, this student was given a passive role of umpire. This student was involved in motor engaged responding for 42.6% of the time, compared with 28.5% for the students participating at average ability levels. The individualized nature of her participation led to more opportunities to practice the subject matter, or alternate physical activities.

Class # 3 had two students with special needs. The first student had mobility needs and used crutches during her physical education classes. This student spent a considerable amount of time inactive during gymnastic lessons waiting for teacher instructions. Alternate activities were given to this student for skill practice changes (8.7%). Different criteria for performance were given during scrimmages and games: in gymnastics, routine requirements included fewer moves and balances, and in basketball, this student was given a passive role calling out numbers for a game. In volleyball rule modifications were made (i.e., closer serving line, and the use of a beach ball). Also during a scrimmage volleyball game this student sat on a desk so as to have arms free for involvement (the teacher felt that this would provide involvement opportunities, as this student was unable to use her arms, when dependent on crutches for mobility.

The second student had fewer modifications made for participation, although he was motor engaged for 18.8% of the time compared to 27.8% for his classmates. This student was identified as mentally handicapped. At times, the teacher would pair this student with the other student with special needs in his class, doing alternate skill practice activities. This student displayed avoidance behavior of standing in line for a turn on the gymnastics equipment, and then moving to another line, before actually taking a practice trial.

Minimal changes were made to instructions for Class #4. The educational needs of the student integrated in this class were emotional in nature. The only changes made were during a soccer-baseball game. The pitching line was moved ahead to accommodate some learners, and rule changes were made regarding number of 'strikes' and 'outs'. These changes were made for all students within the class.

Changes were only made in class # 5 during a baseball game, and the student identified with special needs was involved in a passive role (umpire/scorekeeper) for the lesson, because he was sick that day. Otherwise this student participated in all activities. He used a walker for stability during some lessons, but usually selected not to use it, so he could have freer movements, and join in the activities. This student was engaged in subject matter motor activities comparable to his classmates.

Changed instructions for class # 6 occupied 3.6% of the class time. This student, identified as having emotional/

mental educational needs, spent a low percentage of time in motor engaged responses (16.5%). Some alternate activities were provided for some drills in basketball, or modified criteria concerning technique. This student spent a considerable amount of time wandering among classmates. When directed, she participated in class activities. The teacher did not correct technique or give specific feedback to this student. At times, the teacher would pair with this student to give her a turn at drills. She was not encouraged to stay in class groups, or to stay on task.

Both students from class # 7 had teacher aides accompany them to their physical education classes. The aide for the first student was heavily involved in the class and offered assistance and instructions to many students within the class. The other teacher aide, sat at the side of the gymnasium and rarely intervened for disciplinary actions. No changes were made in instructions and criteria for this student, who had emotional educational needs.

The first student required a wheelchair for mobility. For one gymnastics lesson, she was involved in an alternate activity using a ‘stick and ribbon’. The teacher aide modified most of the drills and activities to include this student. Assistance was provided for 4.8% of the time. Assistance usually was in the form of helping the student into correct places for involvement. This student used a manual wheelchair for mobility, but was usually pushed by other students within the class. The teacher aide tried to intervene on these occasions to foster more independence of the student.

Individualized skill practice changes were made in badminton lessons, for all students. Different instructions were given for students when they were not involved in games to practice certain skills on the sidelines. This teacher also used a form of student-directed or self-paced learning in the gymnastics lessons. A list of required moves and sequences were posted and the students were to practice individually (or in suggested groups) and check off when they felt they had mastered the skills. The teacher would rove throughout the class and observe sequences or skills after the students had checked them off. The average percent of motor engaged responses for the students, with and without special needs in this class was 30%.

DISCUSSION

> I feel that the greatest gift that we as [educators] can strive to give our children is the opportunity to learn, to communicate and to be accepted socially in their community. This gift will require adjustments, effort, patience and understanding.
>
> (Steinbach, 1987, p.12)

Children with special needs are being educated through integration in their neighbourhood schools in New Brunswick. The process of integration is very complex, dealing with the complexities and intricacies of human behavior. Many factors need to be considered when assessing student opportunities to learn in integrated physical education classes. How have students identified as having special needs been included in elementary physical education? This question has been addressed in this study by examining the nature of participation in curriculum activities and student inclusion in motor content.

Nature of Participation in Curriculum Activities

Research dealing with the integration of students with special needs into physical education programs have often neglected discussion of students' participation in curriculum activities (Squair, 1987; Watkinson, 1987). One focus of the present study was to describe the nature of participation of students in physical education classes. Student participation was investigated based on particular roles for involvement. These characterized learners as participating in special active roles, alternate activities, special passive roles, observation roles, or participating fully. Teachers reported that the majority of students with special needs participated fully in curriculum activities (Refer to Table 4). This finding is encouraging. Few teacher respondents indicated that students with special needs were involved in observer or inactive roles. All activities offered full participation for students with special needs as indicated by response rates in excess of 50% in each activity. Outdoor pursuits, movement-oriented activities, and fitness activities offered the greatest amount of inclusion. Watkinson & Bentz (1985) in their study of students with mobility impairments found that aquatics and games were the activities that provided the greatest degree of involvement for the students with physical disabilities. In reporting Alberta results, children's games, fitness activities and outdoor skills were reported by 80% or more of the respondents as providing opportunities for active participation (Watkinson, 1988). In the present study, the roles most frequently reported for students with special needs, involved students' participating fully, in special active roles or in alternate physical activities. Passive roles were only reported by one teacher. Responses in the role of observer were also infrequent in the present study. Watkinson (1988) expressed concern over the amount of time disabled students spent observing or in inactive participation roles.

> While some benefits can be gained by all students from observing, time-keeping, refereeing or "coaching," these activities must not make up the bulk of students' physical education programs.
>
> (Watkinson, 1988, p. 32)

Less than 30% of the respondents reported the assistance of teacher aides and student tutors were only utilized by 10% or fewer of respondents. In two studies (Folio & Norman, 1981; Webster, 1987) of elementary school physical education classes, the use of peer tutors was reported to be beneficial. Folio & Norman (1981) found positive benefits for the students being integrated, for the tutors themselves and for the teachers in assisting them to meet program objectives. In a study of adapted physical education classes, the use of peer tutors increased the percentages of motor appropriate behavior for students with special needs (Webster, 1987). The present study found that students with special needs are involved in a predominantly active fashion in curriculum activities. However, in light of research on the effectiveness of peer tutors in increasing the participation of students with special needs in curriculum activities, it follows that students with special needs may become even more actively involved in all curriculum activities. This strategy for inclusion involves a degree of planning and training of tutors, but in the long run may help to increase teachers' effective use of instructional time, contributing to high degrees of participation and successful integrated experiences for all students involved. To be effective, the use of peer tutors must be implemented in a manner that does not set up negative social effects. The use of peer tutors can in fact support students who are low participators in class activities, not just for those students identified with special needs.

On the questionnaire item dealing with class organizational groupings, teachers reported spending the majority of class time in individual (38%) and cooperative (35%) activities. However, the videotape analysis of the fifty-five lessons for this study showed that the majority of time was spent in competitive situations (46% in competitive, 24% in individual, 18% in a combination of reciprocal/individual groupings, 10% in cooperative, and 2% in reciprocal situations).

The differences found between reported percentages and observed percentages of videotaped lessons could have two possible explanations. The first would be that the reported percentages were unreliable data, and that teachers offered replies that they assumed were expected. A more plausible explanation is that teachers were questioned about the amount of time they used the four groupings over the course of the year, while the videotaped lessons only encompassed part of the school year. In either case, these findings support a need for further investigation regarding which class structures and student groupings foster maximum learning and time on task for students in integrated physical education classes. From classroom research in integrated classes, cooperative groupings were found to be the most successful in including students of varying ability levels (Johnson & Johnson, 1986, Slavin, 1983). More research is needed on these groupings in the gymnasium. Strategies to include students of varying abilities in active participation in physical education classes need to be further developed.

Student Inclusion in Motor Content

The inclusion of students in motor content areas of the physical education curriculum was investigated. The class summaries indicate that students with special needs were participating at the same level as their classmates, or more importantly, were engaged in non-motor activities for a comparable and high percentage of class time. In the present study students participated in motor appropriate responses for 25.4% of the time (Refer to Table 6). This low percentage is similar to results reported in the literature on other studies of how students use their time in physical education classes. Gauthier (1980) in addressing mainstreaming in physical education reported that there were no significant differences in the amount of time spent practicing motor skills for 'regular' students or for those students integrated, but that the amount of time devoted to practicing was very low.

Other ALT-PE (1982) studies also found that students were engaged in motor activities successfully for low percentages of the time and that Motor Appropriate responding varied depending on the lesson activity being taught (Gagnon, Tousignant, & Martel, 1989; Ratliffe, 1986; Thompson, 1988; Webster, 1987). In Metzler's (1989) review of how students spend time in physical education, he cites specific examples that dance lessons will be high in alt-pe responding, while gymnastics lessons will be low. Results from the present study indicated similar differences based on activity. As presented in Table 9, games and baseball activities resulted in the highest percentages of motor appropriate behavior (39.8% and 36.7% respectively). Gymnastics provided only 16.5% of successful motor responses by the students. Although this finding is slightly higher than that reported by Thompson (1988), this particular activity seems to provide very little opportunity for learners to be actively involved with the subject matter. One explanation may have to do with the nature of gymnastic activities. Teachers may be overly concerned with safety precautions in these lessons, thus organizing learning situations in a precise manner, reducing the number of students who participate at one time.

Equal opportunities for involvement with subject matter motor content activities were provided for students identified with special needs (62.9%) and for students participating at an average ability level (63.13%). However, there was a difference found in the percentages of time that teachers devoted to changing instructions or performance criteria for individual learners. Teachers provided individualized instruction for learners with special needs for 10.3% of the time, while only individualizing instruction 0.83% of the time for learners participating at an average ability level within their classes. It was anticipated that teachers would use strategies to individualize instruction for more students within their physical education classes. The types of strategies used in this study included alternate activities for learners with mobility limitations, adaptations of Canada Fitness Test requirements, and specific game and scrimmage modifications. For individuals using wheelchairs, the broad jump criteria was one strong push for distance, and the bean bags for the shuttle run were placed on chairs so students could independently participate. During gymnastic instructions, criteria for performance were modified. This included a change in the number of balances and moves required for a routine. In one lesson, a student was given an alternate gymnastics activity utilizing the 'stick and ribbon'. This allowed the particular student to participate from her wheelchair, independently. Game modifications for soccer-baseball and baseball involved the students in passive roles of umpire and/or scorekeeper. To participate in volleyball, a beach ball was used, and serving line and rule modifications were made. Squair (1987), outlined similar changes for Canada Fitness Test activities for individuals using wheelchairs. In her study, teachers made more extensive basketball modifications (i.e., teaching wheelchair basketball rules and skills). This difference could be due to regional influences, in that Alberta (location of Squair's study) has wheelchair basketball camps for children and a sport league for those interested in playing. The sport of wheelchair basketball is not prevalent in New Brunswick, especially for school-aged children. Many equipment modifications to facilitate learners' participation were also oulined by Squair (1987) that were not evident in the present study. Kunc (1984) reported that modifications were made to include him in the gymnastics section of the program. He offers suggestions for inclusion that focus on the strengths of the person. For example, if an individual requires a wheelchair for mobility, involvement would naturally focus on maintaining and increasing upper body strength and flexibility.

Individualized instruction is documented as a valuable teaching strategy in current educational literature (Aufderheide, McKenzie & Knowles, 1982; Biklen, 1985; Hellison, 1985; Knoblock, 1987; Mosston & Ashworth, 1986; Slavin, 1983), yet teachers involved in this study had a tendency to give one set of instructions, or to employ these strategies to individualize instruction with students identified as having special needs. This may indicate that teachers see individualized instruction as beneficial only for students with special needs, despite the literature and research indicating otherwise (Biklen, 1985; Knoblock, 1987). Another possible explanation could be that teachers are unsure of their abilities and lack confidence in applying these strategies to a class of students with a wide range of ability levels. Another explanation could be that they lack the necessary training in transferring these strategies from the classroom to the gymnasium. Training and the availability of resources have been resounding concerns of teachers in New Brunswick (New Brunswick Department of Education, 1988; Stephens, 1990), and across Canada (Schmid, 1987; Squair, 1987; Watkinson & Bentz, 1985). It may also be that teachers perceive individualized instruction as requiring much of their time and intense concentration. Therefore they only use it where they feel there is the greatest need. The use of a frequency count may have been helpful in this study, as interval recording may not have shown all instances of 'change' instructions. The ideal would be a high frequency of changes with a low percentage of time spent in individualizing instructions. From the present study, teachers devoted a very low percentage of their class time (4.4%) to changing instructions for individual learners and the students with special needs were involved in the majority of class activities.

Students participating at an average ability level spent 75.9% of their time in physical education classes not actively involved in the subject matter motor content. Students with special needs spent 71.9% of their time not motor engaged in lesson activities. For all classes and all students, waiting was the most frequently coded activity and occupied 30% of students' time. This supports other research investigating time on task in physical education (Aufderheide, McKenzie & Knowles, 1981; Gagnon, Tousignant & Martel, 1989; Gauthier, 1980; O'Sullivan & Burroughs, 1989; Thompson, 1988; Webster, 1987). Gagnon, Tousignant and Martel (1989) found that:

> ... the students spent an average of 50% of the lesson waiting. ... this matter deserves serious consideration and should be investigated.
>
> (p.287)

These findings from as early as 1980 indicate that physical education teachers need to be designing their teaching strategies to have students involved for greater amounts of time in subject matter activities and less time waiting. Teachers need to address their management skills as well as monitoring skills after they have set up the lesson. This becomes imperative where students are only receiving one 40 minute period a week of physical education.

Differences were found between students identified with special needs and students participating at an average ability level in off task behaviors. These behaviors include not doing what the teacher has asked, doing activities that were not part of the lesson, or behaving in a disruptive manner. Of the 9 integrated students, 3 were off task more often than their respective classmates. The data on these three students and their matched peers are presented in Table 11. There appears to be two main effects. The first is the difference found between the students with special needs and the students participating at an average level. The second effect relates to the teachers. This effect was particularly evident with the two latter teachers. When students participating at an average level had higher percentages of off-task behavior, this seemed to influence the same behavior in students with special needs. It is interesting that the form of off task behavior most prevalent by these students were non-involvement or avoidance behaviors, rather than overt disruptions. This is an important consideration as many misconceptions surrounding the integration of students with special needs is a fear that these students will disrupt the whole learning environment for other students. This was not the case in the present study.

The three students who were off task frequently were taught by physical education specialists. Physical education in the schools that were videotaped, consisted of one or two periods per week. In the classes with physical education specialists, teachers were responsible

Table 11
Percentage Of Time Students Spend In Off Task Behavior

GENDER	PERCENTAGE OF TIME SPENT OFF TASK S1	S2	S3
Male	13.5%	1.0%	1.0%
Female	25.2%	10.4%	9.7%
Male	12.4%	4.5%	4.5%

Note: S1 - Students identified as having special needs
S2 & S3 - Students of average ability level

for teaching physical education at one or two other elementary schools. Teachers expressed a concern about not knowing the students very well. This has some major implications regarding successful integration, and meeting the needs of individual students (Vickers, 1990). Generally, all teachers had the cooperation of their students as off task behavior was low (4.9%) for participants in this study (Refer to Table 6). Gagnon, Tousignant, and Martel (1989) also found low percentages (3.6%) of off task behaviors. In Gauthier's (1980) study, no differences in off task behaviors were reported between students with and without handicaps. He explained this finding as being attributed to the nature of the physical education setting and activities holding the learners' attention more readily than classroom situations. In the present study the teachers' lack of familiarity with three of the students with special needs in their classes may have restricted their ability to keep the attention of these individuals, or to apply individualized instructional strategies.

In studying mainstreamed physical education classes, Gauthier (1980) correlated student opportunity to perform with teacher feedback to learners. He found that teachers gave 'regular' students more corrective feedback, and that as the feedback increased, the opportunities to perform decreased. Gauthier discussed this in terms of a trade-off between the two variables. Although this study did not focus on teacher feedback, time devoted to cognitive involvement varied for classroom teachers, compared with physical education specialists. Some interesting results emerged regarding the amount of time teachers devoted to subject matter knowledge areas. Table 10 provides this comparison. Physical education specialists spent more time providing content in subject matter knowledge areas, for example providing information on the technique of specific skills or strategical information in applying them to game or scrimmage situations. Students of physical education specialists, therefore, were correspondingly more cognitively involved (25.2%), compared to classroom teachers who provided only 8.2% of the class time in 'cognitive involvement'. However, classroom teachers devoted 68.1% of the time in subject matter motor content, and physical education specialists devoted 58.8%. Correspondingly, the physical education specialists devoted twice as much time as classroom teachers to subject matter knowledge areas. Motor appropriate measures were higher (28.7%) for those instructed by classroom teachers, compared to 20.9% for those learners taught by physical education specialists. These findings could reflect a trade off by teachers between providing knowledge about the rules, strategies and technique of how to perform, and giving opportunities to practice.

The high percentages of time that students spend not motor engaged raises many concerns about effective teaching strategies (Grant, 1990; Metzler, 1989; Ojeme, 1986). Teachers need to be clear on their class objectives and direct student time more effectively. Waiting time, from this and many other studies is the biggest threat to opportunities to be involved in subject matter activities or tasks, and ultimately to learning. The increased waiting time may possibly lead to more off task behavior, especially as students get older (Metzler, 1983).

The total motor engaged time for students with and without special needs was again, comparable, but low for all students in the integrated physical education classes investigated. From the central tendency results, no significant differences were apparent in total motor engaged involvement (Refer to Table 8 for results). Further analysis, determining the variability of the data revealed that learners with special needs had a greater variance for all motor engaged responses than learners of an average ability level. Closer inspection of the ALT-PE data revealed that four of the nine students integrated with special needs had a higher percentage of time responding in 'motor engaged' activities but were not outside the range expected for this variable, two students were 'motor engaged' as much as their classmates, and three students were 'motor engaged' at a lower percentage of time than their classmates participating at an average ability level. Two of the latter students were within the range seen for students without special needs in other classes. This variability of responses may be attributed to a number of factors. The amount of time a student participated in motor activities was highly dependent on the specific class activity, with higher percentages of time engaged in motor responding evident in games, such as baseball and badminton. The teachers' skills in maximizing learning also influences this dependent variable. Other important factors included, the class groupings, motivation levels, both of students and teachers, nature of special needs, and forms of assistance and change in instructions provided.

From the ALT-PE (1982) observations only 0.9% of the total time for all classes and students was devoted to responses of an assisting nature (motor supporting learner responses). This information is presented in Table 6. This would suggest that few opportunities in reciprocal and cooperative settings were provided. Only 12% of the lessons videotaped provided reciprocal or cooperative learning environments. Again, this issue deserves attention, in light of current research supporting the value of cooperative class groupings (Biklen, 1985; Jellison, Brooks & Huck, 1984; Johnson & Johnson, 1986; Wilcox, Sbardellati & Nevin, 1987).

Teachers appeared to change criteria for performance for students in scrimmage/routine and game activities, which would indicate that changes were made to include students in group activities, with a focus on competitive situations. However, this only encompassed 3.9% of the total time for learners with special needs. The majority of instances that students were given individualized instruction, were during skill practice involvement (6.4%). This involved responding individually or in some cases, with a partner. These strategies of individualizing did not require extra time to execute. This factor is important, as teachers have raised a concern that integrating students demands more of their time (Stephens, 1990). Particular attention was given to specific motor skill development, through the use of alternate physical activities, or modified criteria for performance.

As reviewed, teaching stategies geared to individualize instructions (Aufderheide, Knowles & McKenzie, 1981; Aufderheide, McKenzie & Knowles, 1982; Cutforth, 1988; Knoblock, 1987; Lavay & Depaepe, 1987), cooperative learning environments (Grant, 1990; Jellison, Brooks & Huck, 1984; Johnson & Johnson, 1986), changing aspects of lesson activities and requirements for specific learners (Arbogast & Lavay, 1986; Robbins, 1990; Schmid, 1987; Vickers, 1990; Weber, 1989), and providing teacher or student aide assistance (Folio & Norman, 1981; Webster, 1987) have proven effective in including students of varying abilities and needs. Physical education teachers need to transfer these strategies more effectively to the gymnasium.

Implications

This research was introduced with a challenge to educators to find the best ways to integrate (Biklen, 1985; Knoblock, 1987). Many opportunities to learn have been made available in New Brunswick schools for students with special needs who have been integrated in physical education classes. Integration has been interpreted in many ways, by a variety of groups. McGill (1990) has identified the challenge of integration: "once people are in the places [schools], how do we connect them?" New Brunswick legislation has provided for all students to be enrolled in local schools and to be integrated in regular classes (New Brunswick Department of Education, 1988). This door has been opened. Strategies must be systematically developed to ensure the active participation of students in physical education programs.

Many items of concern arose from this study in regards to the integration of students identified as having special needs into the elementary school physical education program. From this research, it is apparent that the issue of integration is not easily evaluated by choosing one aspect of study, in isolation of other variables. It is anticipated that by drawing this research into Gallahue's (1987) framework (as utilized in the literature review) for physical education programs, the impact of the many variables important to integration will not be lost.

The importance of a philosophical commitment to integrating students cannot be omitted in planning positive experiences (Gallahue, 1987; Grant, 1990; Hellison, 1985; Knoblock, 1987; New Brunswick Department of Education, 1987; Wolfensberger, 1972, 1983). The New Brunswick Department of Education has committed itself to the inclusion of all students in their neighbourhood schools. Although beyond the scope of the present study, it is clear that teachers must also base their instructions on values of inclusion and the importance of providing participation opportunities for all students within their classes. Research into this area has shown that teachers feel uncertain and unprepared to teach children with special needs (Squair, 1987; Stephens, 1990; Watkinson & Bentz, 1985). These concerns, founded or unfounded will directly impact the curriculum approach utilized and subsequent teaching strategies.

Involvement in curriculum planning and program design are necessary. Teachers need to be involved in all stages of the program so that they will develop some ownership responsibility for what they teach. This is often overlooked in physical education (Grant, 1990; Hellison, 1985; O'Sullivan & Burroughs, 1989). Once general program objectives are set, teachers must consider individual learners and structure experiences so maximum learning opportunities are provided for each learner. In meeting needs of students with a wide range of abilities and needs, teachers are required to enlist available resources and assistance within, and outside of the class situation. Teachers must present the content in a manner that is congruent with program objectives, learning environment, and student needs. Teaching styles and strategies selected need to be compatible with the overall goals of the physical education program (Biklen, 1985; Gallahue, 1987; Mosston & Ashworth, 1986; Vickers, 1990). Using individual learner objectives for participation in physical education will demand much initial planning and personal involvement by the teacher. In light of other areas (for example, administrative, safety, and parental concerns) requiring constant attention, teachers may not institute this framework for implementing their physical education programs (Vickers, 1990). Thus, criticisms of the incongruency of program objectives and lesson activities will continue to flourish.

> There is evidence of the need to upgrade the quality of physical education teaching and physical education curriculum at the elementary level.
>
> (O'Sullivan & Burroughs, 1989, p.21)

From the present study findings, the elementary physical education program does not provide adequate practice time for students to learn skills, or to participate in physical activity. With one or two 20-40 minute periods per week, the possibilities are limited. A great portion of time was spent waiting for instructions or opportunities to respond. Only 4 lessons out of 55 had students motor engaged for 50% or more of the total lesson time. This finding is of great concern. A major implication from the present research is that there is a need for improved teaching strategies to enhance learning for all students within the physical education program, not just for those identified as having special needs. In classes where students with special needs were only engaged in motor appropriate behaviors for 20% of the time, other students in the class were also participating successfully for 20% of the time. As physical educators, we need to be concerned with the amount of time provided to students to respond successfully. This is true for all students. These findings further support Quality Daily Physical Education in the school system (CAHPER & Fitness Canada; Grant, 1990; O'Sullivan & Burroughs, 1989; Robbins, 1990).

Information was gained in this study regarding the content of physical education classes and how individual students were involved. Activities most frequently included in the elementary physical education curriculum were: fitness, games, gymnastics and ball skills. These activities reflect objectives of full participation, individual effort, physical fitness, and skill development. Activities such as outdoor pursuits and swimming, provided ways to explore and develop meaningful life-time pursuits. The students with special needs investigated in this study were participating in these curriculum activities fully, in special active roles or in alternate physical activities.

The use of systematic observation can offer teachers useful information regarding their own, as well as students' use of time in the class. As an evaluation aid, it can be ongoing and provide direction to teachers regarding adaptations and changes in their instructions. This form of evaluation needs to be explored to maximize teachers and students use of time during instructional periods. Time spent engaged in motor appropriate responding needs to be increased and time spent waiting (or wasted time) needs to be decreased. What strategies will provide learners with opportunities to be actively participating in program content activities? This question must be investigated.

Time on task is an important variable to examine context of physical education classes and student responses to instructions. It allows for a determination of the opportunities to learn made available by teachers. However, physical education also offers unique opportunities for more immediate interaction and inter-dependent involvement with others. As reviewed, this social component of physical eduction is often listed in curriculum goals and objectives in reference to building of character, fostering cooperation, encouraging teamwork, and teaching fair play/'sportsmanship' (Barrow, 1983; Robbins, 1990; Sherrill, 1986; Vickers, 1990). If these are truely goals, then integration possibilities are ever-present within physical education contexts. Future studies regarding integration in physical education need to concentrate on these important factors, to determine if students really are involved, or 'connected' with their fellow students in the physical education class. The process of integration must be well planned and developed with a focus on the individual learners that make up the class. Only in this way will the physical education environment be inclusive.

Future Research Needs

Any descriptive study in integrated situations, reveals many issues and research needs. The idea of integration is relatively new within the Canadian (and North American) education systems. Many variables have been found to correlate with learning; including the learning setting, the value of community-based instruction and learning, teaching styles utilized, curriculum designs and teaching strategies, learners' interactions, both with other learners and with instructors, individual student qualities, home, school and community influences. The variables that affect students and their learning are endless. Descriptive research hopes to explain present variables that are affecting the specific research situation, and offer ideas and strategies in improving, changing or strengthening the impact of the variables, in this case on improving student opportunities to learn the physical education curriculum content. Much classroom research has been done supporting cooperative and individualized teaching strategies as being effective ways of including students in one class, with a vast array of needs. These strategies need to be applied and evaluated in physical education settings .

As stated, the concept of integration is complex. We, as educators, and researchers, have not yet begun to explore the possibilities inherent in education settings with a wide range of individuals, complete with their varying range of interests, skills, abilities and strengths.

The following areas have presented themselves from the present research as areas in need of further investigation:

1) Direct input of students identified with special needs, being integrated into the educational mainstream, is drastically lacking.

> Professionals cannot assume to know fully what is best for the child without understanding his/her self-perceived needs, perceptions and concerns.
>
> (Tymitz-Wolf, 1984, p.166)

2) Research designs and strategies need to be developed to communicate effectively and acquire information from students with varying levels of educational need.

3) Longitudinal studies, with time intensive qualitative data collection are needed concerning students' involvement and participation in physical education programs and activities, and interactions within school and community environments. Meaning from the point of view of those experiencing it needs to be gained (Biklen & Mosely, 1988)

4) Programs to facilitate positive and successful integration experiences need to be devised and studied for their effectiveness in including all students in active and full participation in the physical education program.

5) Comparisons of specific teaching strategies and styles, using ALT-PE measures need to be designed.

6) A curriculum design to increase teachers' and students' ownership of their programs needs to be investigated and devised. All those involved need to be included in the designing, structuring, and evaluation of the program so as to increase successful time on task, and ensure learning.

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APPENDIX A

Coding Definitions for Modified ALT-PE (1982)

CODING DEFINITIONS FOR MODIFIED ALT-PE (1982)

ADDITIONS MADE TO CONTEXT LEVEL CODING DEFINITIONS FROM THE ALT-PE (SIEDENTOP, TOUSIGNANT, & PARKER, 1982, p.11-13) CODING MANUAL.

SUBJECT MATTER MOTOR

SKILL PRACTICE:CHANGE - As per manual definition (p.13), except the teacher directs specific students with tasks adapted from the class directions. May include different tasks entirely or different criteria for mastery.

SCRIMMAGE/ROUTINE:CHANGE - As per manual definition (p.13), except teacher gives specific adaptations for specific students.

GAME:CHANGE - As per manual definition (p.13), except teacher gives specific directions for involvement to specific students.

FITNESS:CHANGE - As per manual definition (p.13), but teacher gives specific criteria for involvement to certain students.

ADDITIONS MADE TO DEFINITIONS FOR LEARNER INVOLVEMENT CATEGORIES, IN ALT-PE CODING MANUAL (SIEDENTOP, TOUSIGNANT & PARKER, 1982, p.14).

MOTOR ENGAGED

MOTOR APPROPRIATE/AIDE - Involved in subject matter motor activities successfully. An aide, teacher, or another student assists the learner to perform tasks.
* NOTE: Coders were instructed to comment on the type of assistance provided ie. physical, verbal, or visual help.

MOTOR INAPPROPRIATE/AIDE - Involved in subject matter motor activities unsuccessfully (task may be too difficult for learner, or so easy that practicing would not lead to lesson goals). An aide, teacher, or another student assists the learner to perform tasks, but result or assistance is unsuccessful.

APPENDIX B

Teacher Questionnaire

11. A) Check the activities that are included in your physical education curriculum this year (list any other activities that are not named)

B) Check the appropriate category(s) for the student with a disability in your class, for each of the activiti*es in your curriculum.

ACTIVITY	A) check if in curriculum	B) does not participate	participates as observer	special passive role	special active role	alternate physical activity	participates with teacher aid	participates with peer tutor	participates fully
DANCE									
FITNESS									
GYMNASTICS									
GAMES									
TRACK AND FIELD									
OUTDOOR PUSUITS									
AQUATICS									
BALL SKILLS									
MOVEMENT-ORIENTED									
OTHER:									

12. Please indicate the percentage of time spent in each context situation in your physical education class (indicate amount spent in each over the course of a year)

SITUATION	%AGE OF TIME
COMPETITIVE	
COOPERATIVE	
INDIVIDUAL	
RECIPROCAL (PARTNER-WORK)	

APPENDIX C

Modified ALT-PE (1982) Data Collection Form

SCHOOL: ______________________________ CLASS # ________________ GRADE: ______

TEACHER: ______________________________ CODER: ______________________________

DATE OF TAPING: __/__/__ MM DD YY CURRENT DATE: __/__/__/ MM DD YY

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
S___	C																										
	LI																										

COMMENTS: ____

____

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
S___	C																										
	LI																										

COMMENTS: ____

____

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
S___	C																										
	LI																										

COMMENTS: ____

____

CONTEXT LEVEL

GENERAL CONTENT
- Transition (T)
- Management (M)
- Warm Up (WU)

SM KNOWLEDGE
- Technique (TN)
- Strategy (ST)
- Rules (R)
- Social Behavior (SB)

SM MOTOR
- Skill Practice (P)
- Scrimmage/Routine (S)
- Game (G)
- Fitness (F)
- P change (Pc)
- S change (Sc)
- G change (Gc)
- F change (Fc)

LEARNER INVOLVEMENT LEVEL

NOT MOTOR ENGAGED
- Interim (I)
- Waiting (W)
- Off-task (Of)
- On-task (On)
- Cognitive (C)

MOTOR ENGAGED
- Motor appropriate (Ma)
- Motor inappropriate (Mi)
- Motor Appropriate/Aide (AA)
- Motor Inappropriate/Aide (IA)
- Motor supporting (Ms)

APPENDIX D

Observation Training

OBSERVATION TRAINING

1. Study category definitions - do manual exercises

2. Lecture session to discuss any problems with the manual exercises and to clarify any discrepancies in definitions

3. a) Videotape analysis with coding sheet - instructor offers instruction

3. b) Videotape analysis with audiotaped intervals (10 second observe - 20 second record)

3. c) Videotape analysis with intervals (reduce time gradually until using six second observe and six second record). Establish reliability checks before reducing time for observing and recording.

MAINTAIN A DECISION LOG TO NOTE ANY DEFINITIONS WHICH CAUSED DIFFICULTIES AND ANY TECHNIQUES USED THAT HELPED TO CLARIFY OBSERVERS' RESPONSIBILITIES.